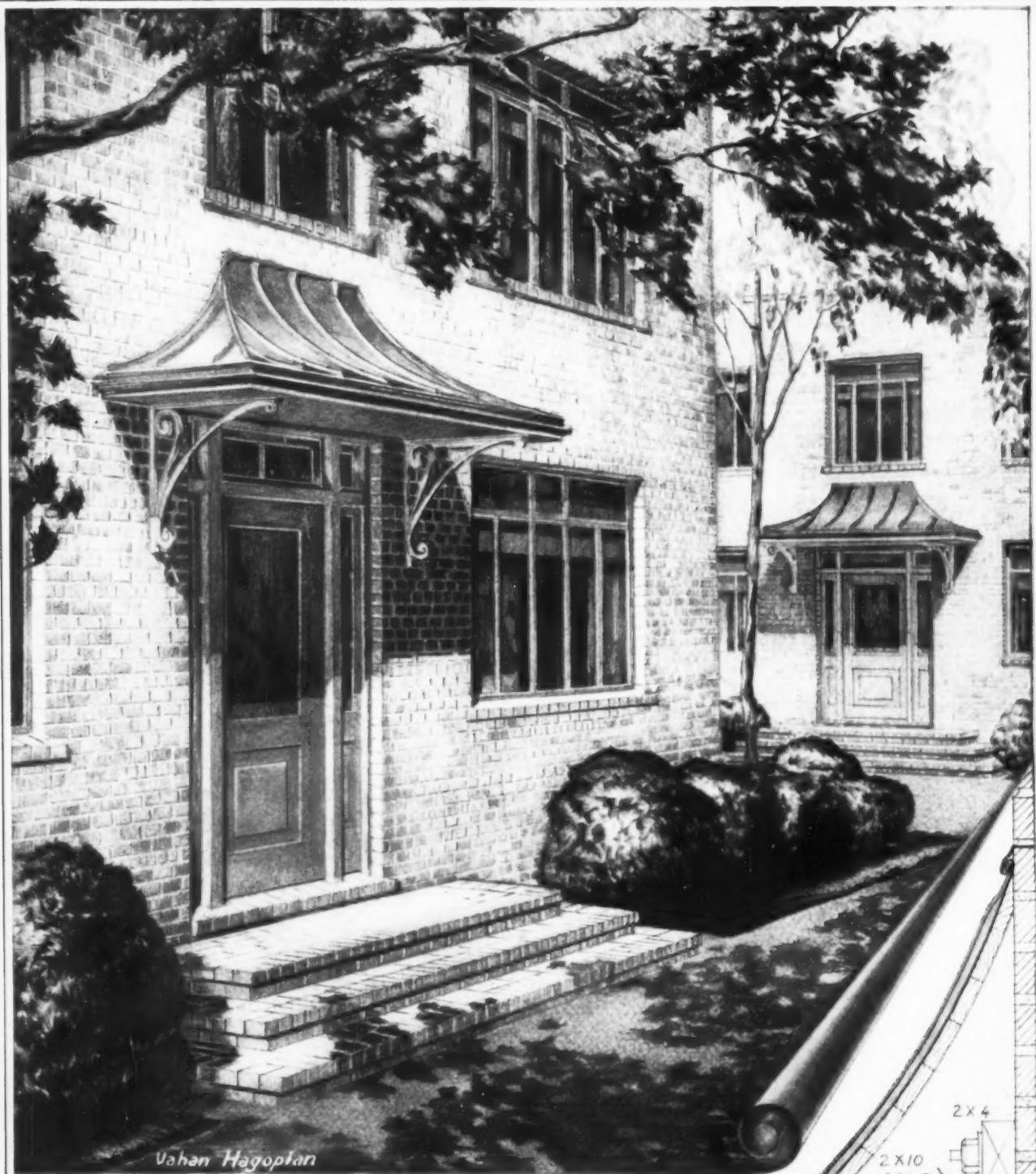


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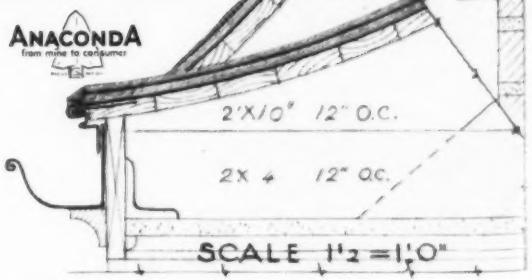
ARCHITECTURAL



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ARCHITECTURAL RECORD

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NEXT MONTH

LAST MONTH the RECORD said "Building itself will be big in 1942. But big as it will be, it will be different. Scarcities of metals will demand that."

That's a condition, not a theory—to borrow a phrase from Grover Cleveland. And in facing the condition the questions that naturally come to mind are: "How different will building be? How different can it be if normal use of metals must be curtailed? What alternate materials can be used to take the place of metals? And to what extent will labor and building code officials cooperate in developing simplified construction practices that involve use of such alternates?"

Complete and practical answers to all these questions can't be given yet by any agency or publication. But the RECORD can—and will in January—report action on this newest of emergency fronts. From a host of sources—architects, engineers, builders, manufacturers and the technical staffs of many Government agencies—we're compiling suggestions, opinions and the results of experiments on emergency construction methods.

The January RECORD will thus serve as a guide to simplified building practice—with particular editorial attention focused on a Building Types study of industrial buildings.

CAN WE BUILD WITHOUT METAL?

This is YOUR problem. Methods of simplifying construction and equipment, and ways of using alternate materials MUST be developed. The country is looking to the technical ingenuity of architects, engineers and builders for results. If you have solved any part of this problem in any phase of design, planning, construction or equipment, communicate with the Conservation Editor, ARCHITECTURAL RECORD—without delay.

VOLUME 90

DECEMBER 1941

NUMBER 6

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BEHIND THE RECORD

The question of the hour for architects, engineers and builders is "What's going to be built?" And, as we see it, the quick overall answer is "Whatever is *really* needed." That's maybe too obvious and general to be anything more than cold comfort. But it's a perfectly sincere rejoinder—and it does suggest the fact that before any more detailed answer can be given, current building needs must be researched specifically in each locality. In other words, the shortage of critical materials created by our defense emergency constitutes an effective bar to all unnecessary construction—in or out of defense areas. But OPM and SPAB have publicly recognized that a lot of construction will be necessary this year and have tacitly admitted the necessity of granting priorities in certain cases.

But the need *must be proved*, as we see it. In many cases it is going to be difficult conclusively to prove a need for a building—a present condition resulting from two neglects of the past. The first is a lack of knowledge—social, economic and physical—of our towns and cities; the second is a lack of planning based upon this knowledge.

Here's a situation that throws down another challenge to architects. There's work to be done! If your city hasn't a planning commission—form one. If your city's building needs aren't now known—get the facts. Then get the planning commission busy on the job of finding out specifically what buildings your city requires to meet the demands of new defense activities and increased population. And do it *now!* Here, as we see it, is the only royal road to priorities.

In an editorial recently the Cleveland Plain Dealer sounded the clarion for greater and greater sacrifices on behalf of all-out defense—and let the hardships fall where they may! A vigorous answer—unpublished till now—was given the newspaper by Travis G. Walsh, AIA. The following excerpts from his letter express, we think, points that are vitally im-

portant to the economic as well as the social and political health of the country:

The Construction Industry has been called upon to play a leading role in the present emergency and the records so far are favorable. But the records also indicate that only a limited percentage of the Industry can be absorbed by the defense program, leaving a formidable balance to be accounted for. A cynical viewpoint is one which disregards the ominous implications of this situation and merely passes it off with the current catch phrase—so what?

There is not any question about the paramount importance of accelerating defense measures in every conceivable way but national defense consists of more than ordnance equipment or supplies. It is entirely within the bounds of reason to regard the developed tax structure, the national economy as a vital part of the defense effort.

Your editorial described "the half-hearted measures of the kind England employed in the first year of the conflict." The Committee on Industrial Relations has been in close correspondence with the Royal Institute of British Architects and developed a report from that body; in this report, the fact was established that their War Cabinet completely dislocated the

British technical professions in the interests of alleged expediency (a process that is now under way in this country)—a policy which they have since been attempting to rectify.

The present national policies wherein restrictions are unscrupulously imposed on private activities without the ability of the Government to absorb these activities is basically unsound "arithmetic."

A successful defense program should recognize the necessities of that vast section of the American public which, by virtue of not being definitely absorbed by Governmental activities, their sole effort becomes that of contributing to the national income tax structure. And a very important effort it is, when considered in relation to the prodigious appropriations to be accounted for.

The Construction Industry, together with Agriculture, represent two of the most important national activities. For the Government to dry up the source of this activity without the demonstrated capacity to absorb it is depriving employables of work; it is stifling the circulation of willing and available capital, thereby contributing to the misery of vast sections of the population at a time when the national morale should be strengthened rather than impaired.

To remedy these maladjustments is not only a challenge to the national Administration; it is severely practical patriotism.



"We thank Thee, O Lord, for neoprene, sulphanilamide and nylon
and we beseech Thee now for aluminum, manganese and tin."
—Drawn for the RECORD by Alan Dunn

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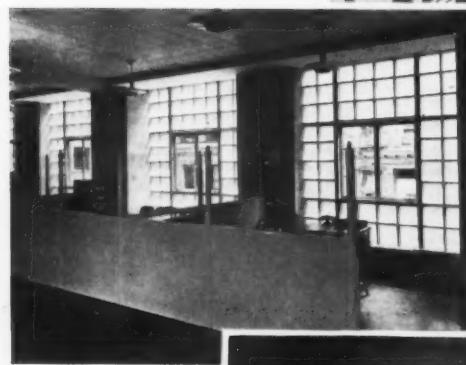
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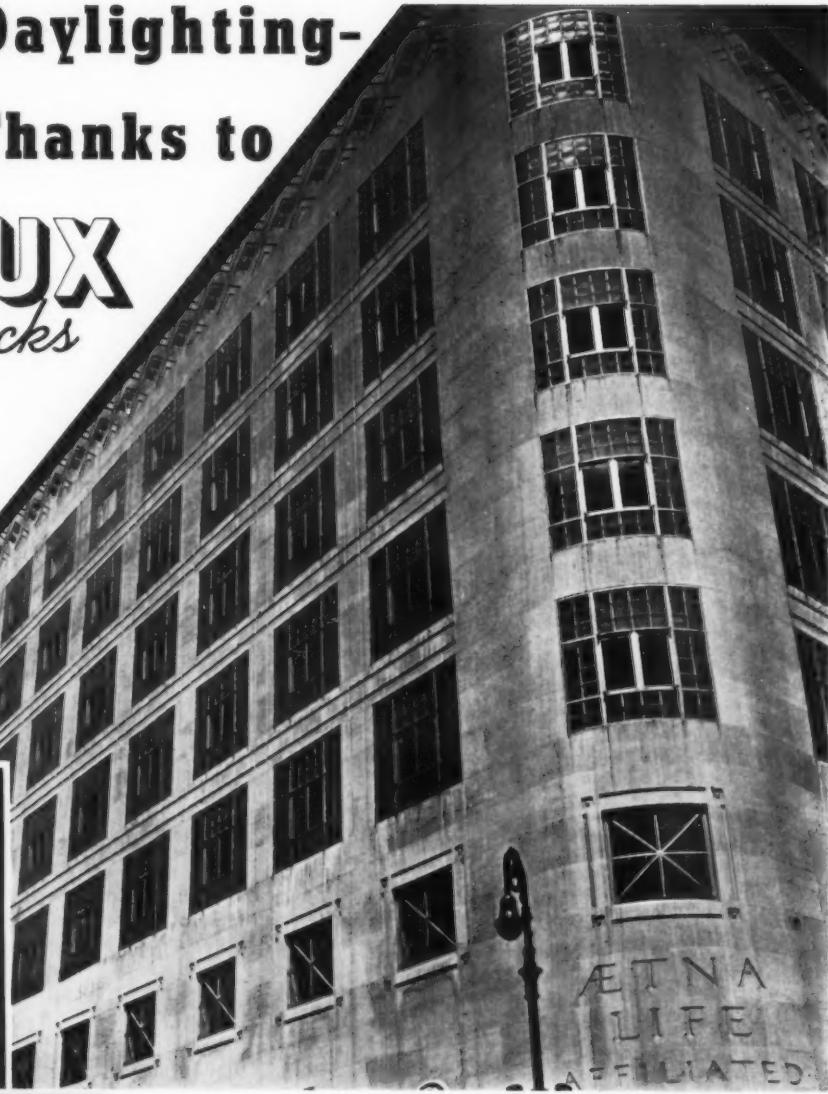
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WITH RECORD READERS

Architects Speak Their Minds on Priorities System and on Government Attitude Toward the Profession

SWIFT REACTIONS to priority rulings were to be expected from architects, probably the profession most directly and adversely affected by a stoppage of building-as-usual. Architectural groups throughout the country met in council, formed committees to urge on the Federal Government less violent measures or to examine priority rules with an eye to more liberal translation.

Requesting relaxation of priorities, the Committee on Priorities and Allocations for Construction Materials, of Detroit, addressed a letter to *Donald M. Nelson*, SPAB Director, signed by *Willis H. Hall* of the Industrial Division of the Detroit Board of Commerce, and chairman of the Committee. The communication put the Committee on record as believing "there must be reasonable allocations of scarce materials to the construction industry," to avoid unnecessary unemployment and hardships and that "enough material must be provided to protect the health and safety of the public, to house them and keep as large a portion of our industry employed and in business as possible." The Committee urged measures to prevent hoarding by army, navy and other Governmental agencies and adoption of a sound system of allocation and distribution; also formation of a Construction Industry Committee, to cooperate with SPAB.

* * *

critical materials. "To defer erection of a needed building is speculating with the future both as to building costs and interest rates."

The Building Industry Conference Board, composed of Northern California architects, engineers, contractors and material manufacturers, has appointed an emergency committee "to present solutions on Government priority rulings; study uses for substitute building materials; and work out new design methods to minimize utilization of other materials critically needed."

* * *

CENTRAL ILLINOIS CHAPTER OF AIA, through its vice-president, *Elbert I. Harrison*, declared there is no need for a drastic curb on private building, which involves a small percentage or none of the materials of which there is a shortage for defense work.

"The brick and tile industry is reported to be operating at less than 80 per cent capacity," Mr. Harrison

reported. "The cement, plaster, lumber and other industries find there is no shortage."

* * *

APPOINTMENT of a priorities adjustment committee to interpret rulings was announced by the South Carolina Chapter of the Institute. "The recent rulings by the Supply Priorities Allocation Board have caused general confusion in the minds of the building public as to what situation actually exists," *Albert S. Thomas Jr.* of Columbia, the committee chairman, explained.

* * *

ALBERT F. KAHN of Detroit, designer of industrial buildings, spoke strongly on behalf of his profession, declaring that while Government and industry participation in building operations is desirable, the actual work of design and construction should be delegated to private architects.

"The employment of a competent private practitioner," he said, "should result in a fresh attack upon prob-

(continued on page 12)

RECENTLY OPENED was this Members' Lounge at the civic-supported Baltimore Museum of Art, where the latest in magazines, books, modern art, music, and even refreshment, can be enjoyed. The earlier view of the basement gallery which the new Lounge, with garden doorway, supplanted, indicates the transition that has taken place in the thinking of museum planners and in the relation of "art" to its audience. Leslie Cheek Jr., Director of the Museum, planned the Members' Lounge



* * *

CALIFORNIA architects took a brighter view. *Frederick H. Reimers* of San Francisco, chairman of the Committee on Public Information of the Northern California Chapter of AIA, pointed out that critical materials represent a comparatively small item in general construction, and that actually there is "no Government ban on any type of construction." Neither is there any shortage, he insisted, of the great majority of materials used in general building. Effective substitutes can be found for most of the

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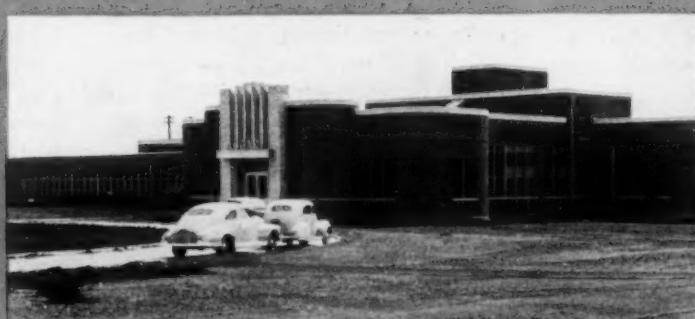
★ The examples shown in the "Electricana" below are but a few from the thousands of Westinghouse products available for the building industry. Specification details on many of them may be found in Sweet's Catalog. For more complete information, and for quick, dependable help on your electrical needs, call your nearest Westinghouse office.

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LIGHTING for cashiers' windows is ample at the swank new *Turf Club, Albany, Cal.* Westinghouse Fluorescent lighting equipment also provides soft, even, glare-free light in clubhouse, lounges, dining rooms and promenades.



WATER COOLERS by Westinghouse serve defense workers in this new clothing plant, engaged in army uniform contracts. Hermetically-sealed refrigeration units with 5-year protection plan provide dependable water cooling at low cost maintenance cost, for every industrial and commercial need. *Haggard Company, Dallas, Texas.*



Westinghouse

(continued from page 10)

lems, a greater enthusiasm in solving their intricacies and above all furnish the assistance of men often more skilled in design and construction than the groups gathered in Government bureaus.

"Then too we must voice the complaint that unnecessary competition on the part of Government with private practice works a hardship on the individual architects, who often, in times of stress such as of recent years, would be wonderfully heartened and uplifted by the opportunity to share in the work carried on by the Government and would in numerous cases be enabled to keep their offices open and their employees at work.

"Properly equipped architectural organizations with carefully prepared plans and specifications will produce infinitely better results and, through competitive bidding, lower costs; besides which, the employment of the private architect places someone disinterested in charge of the work, protecting the interests of the owner."

Construction Industry Conference

MEMBERS of the Construction Industry, conferring last month in Washington, were told by representatives of Government and industry that the defense emergency must serve as a springboard to boost advances in construction technique, building efficiency, new materials and uses.

Without illusion regarding heavy duties ahead, many of the conference speeches were characterized, nevertheless, by optimism that the job would be done with overall social and economic gains.

Both *William V. Reed*, Director of the Standards Division of the Division of Defense Housing Coordination, and *Walter Dorwin Teague*, industrial designer, stressed the need for prefabricated houses.

"In many localities," the housing authority said, "activity in connection with the defense program is of uncertain duration, and there will be no chance after the emergency of integrating the new housing with the

normal housing needs of the community. . . . In facilitating the usefulness of such houses at the end of the emergency, it is necessary that their construction be of high salvage value.

"In programming houses in such areas, the Division of Defense Housing Coordination has requested the agencies doing the building to use a demountable system of construction."

Foreseeing a tremendous post-war demand for prefabricated houses, Mr. Reed said: "Some people believe that (residential construction) costs can be lowered as much as 30 per cent in the post-war period by a rationalization of the building processes."

The end of the emergency, according to Dr. Teague, will see a "well-organized, well-equipped industry all set to supply modern homes to the three-quarters of our population needing new homes."

"The home building industry is the sole example of a great handicraft industry surviving unchanged in a machine age," he said. ". . . A Ford car today costs less than half as much as it cost in 1904, and is many times as good. Yet a house today costs twice as much as it cost in 1904 and structurally is little if any better.

"What the vast, shifting wage earning market needs is a modern house: a bright, shining, completely equipped, up-to-date house costing between \$1,000 and \$2,000; a house a man can alter, or enlarge easily by buying spare parts; a house he can take with him when he shifts his job; a house he can turn in on a new model."

Architects, engineers and contractors may find it necessary, according to *M. W. Watson*, president of the Associated General Contractors of America, to "more closely analyze needed projects with a view to using materials which may not furnish quite as artistic an appearance or which may require a higher upkeep or render equivalent service, the increased cost of maintenance being somewhat offset by a lower first cost.

"On the other hand," he added, "I believe that the ingenuity which characterizes this industry will evolve in a short time satisfactory means of

using new methods and materials."

Speaking on the need for maintaining our farm production plant, *Kirk Fox*, editor of *Successful Farming*, declared one of the soundest investments any farmer can make is needed building.

"The question arises," he said, "are materials available? According to a statement by *Donald Nelson*, 'Such basic building materials as lumber, brick, stone, mortar, concrete and the various clay products are not particularly scarce, are not under priority control, and hence may be obtained freely for any building job whatever.'

Mr. Nelson himself predicted that the defense program, now taking 17 per cent of the national income, would absorb 40 or 45 per cent. Asserting that army and navy inventories of steel and copper are no more than they will need in a few months, Mr. Nelson declared that OPM is thinking toward straight allocation instead of priorities, to simplify the system and eliminate uncertainty.

Scholarships

AIA will receive from Jan. 1 to March 1, 1942 proposals of candidates for Edward Langley Scholarships. Awards will be made in June, 1942. The scholarships, limited to 10 and with \$1,500 as the maximum stipend, are awarded annually to residents of the United States and Canada for advanced work in architectural study, travel or research. The following groups are eligible: Architects, architectural draftsmen, teachers of architecture, students about to graduate from architectural schools and graduate students. *Gordon B. Kaufmann* of Los Angeles heads the Committee on Awards and Scholarships. Application should be made to AIA at 1741 New York Ave., Washington, D. C.

* * *

TWENTY-NINTH competition for the award of the Francis J. Plym Fellowship in Architecture, value \$1,000, is announced by the University of Illinois. The competition will be open to graduates of the Department of Architecture of the University of Illinois under 30. Simultaneously is an-

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Driving corrugated sheets to the Stran-Steel joints. Nails are driven into the nailing groove and held in a powerful grip. Carpenters' tools are the only ones required for Stran-Steel assembly and erection.

Nailing corrugated sheets to the Stran-Steel joints. After these sheets are in position, concrete is poured to a depth of two inches. This forms a rigid, fire-safe floor that keeps maintenance costs at a minimum.



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UNIT OF NATIONAL STEEL CORPORATION

WITH RECORD READERS

(continued from page 12)
nounced 19th competition for the award of the Plym Foreign Fellowship in Architectural Engineering. Applications should be made to Professor L. H. Provine.

THE JAMES HARRISON STEEDMAN Memorial Fellowship in Architecture announces its 16th annual competition, open to graduates of recognized architectural schools between the ages of 21 and 31 with at least a year's practical work in the office of a St. Louis architect. Applications should be sent before Jan. 31 to the Secretary of the School of Architecture, Washington University, St. Louis.

GIFT of five one-year scholarships in industrial architecture to the School of Fine Arts of the University of Pennsylvania, by *Albert Kahn*, has been announced by Dr. *Thomas S. Gates*, president of the University.

Personal

PALMER SABIN, vice-president of the Southern California Chapter of AIA,

has been named Project Manager by the Campbell Construction Company for the United States Naval Hospital and the Naval Reserve Air Base, with offices in East Long Beach, Calif.

EMIL LORCH has been reelected president of the Detroit Chapter of AIA.

JOHN BLAND, 30, is the newly appointed Director of the School of Architecture of McGill University in Montreal. A graduate of McGill, he later studied in England in the Architectural Association School of Architects, and became an Associate of RIBA. He received his Town Planning Institute degree in 1937 and spent some time the following year in the Planning Department of the London County Council.

ARTHUR W. ARCHER, architect, of Kansas City, is chairman of the Architects - Engineers Registration Board, appointed by the Governor of Missouri following passage of an Architects-Engineers Registration Law.

Change of Address

ADOLPH MERTIN announces removal of his offices from 34 W. 28th St. to 101 Park Ave., New York City . . . Beryl Price has opened a new office at 1911 Pine St., Philadelphia, and would like to receive manufacturers' catalogs . . . Requests for manufacturers' data also come from *Thomas J. Earley*, 1701 Walnut St., Philadelphia, and *Hill-Hoover-Heckler-Kohanie*, Professional Bldg., Pittsburgh.

Died

DWIGHT HEALD PERKINS, 74, FAIA and park planner of Evanston, Ill., Nov. 2 at Lardsburg, N. M. Designer of more than 200 school, park and public buildings, Mr. Perkins was also chairman for more than 20 years of the plan committee of the Cook County Forest Preserve Commission. He was also founder of the Chicago Regional Planning Association. His notable works include the Lincoln Park Lion House, Steinway Hall, Hitchcock Hall at the University of Chicago and the School of Education at the University of Michigan, as well as high and elementary schools in Chicago suburbs.

FROM FENCE POSTS TO FACTORIES—THE SAGA OF A SMALL-CITY ARCHITECT

MAURICE E. WITMER eleven years ago chose to practice in Portsmouth, N. H., just because of the appeal of a small city, its people, its architectural problems. Now his office staff of four (right) handles everything from gate posts to factories, and is currently struggling to keep abreast of defense activity. In the photograph are Mr. Witmer (left), the office "trouble-shooter"; Mrs. Witmer, specifications writer and office manager; Eugene Clark, chief draftsman and designer; Mary Joe Ferrel, small home specialist.

IN THE LITTLE New England city of Portsmouth, N. H., now booming with defense activity, *Maurice E. Witmer* has established himself as headquarters for architectural and professional knowledge. Coming to Portsmouth eleven years ago—because "I like people and enjoy living closely with them in a small city"—he has suddenly found himself an important member of the community. For the swelling population of Portsmouth is generating a host of new



building needs. And Maurice Witmer, as a professional man and the only architect member of the town's newly formed Planning Board, is in the vortex of a most significant situation.

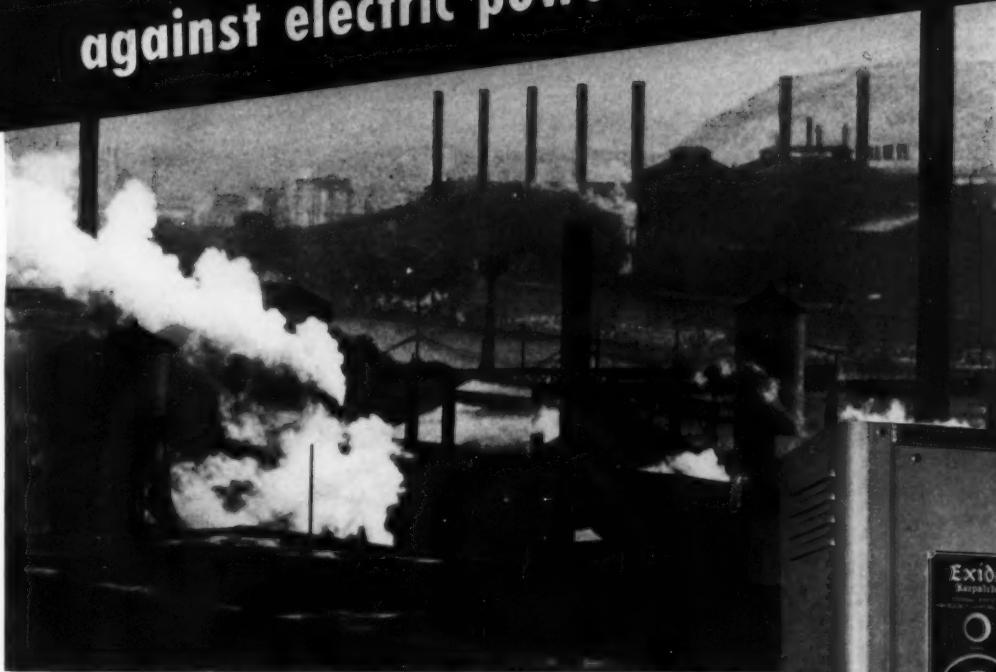
The situation has its general counterpart in almost every defense area city. And the story of Maurice Witmer's activities suggests the type of professional practice that today is

bringing to wide-awake architects a recognition of ability and success in the form of new tasks and responsibilities imposed by our vast program of defense.

His office—five steps from his home and designed in the simple Colonial tradition of the locality—is just large enough to accommodate a

(continued on page 18)

Exides protect vital manufacturing processes against electric power interruptions



NOT long ago, an electric power interruption occurred in a large plant for 14 minutes. During this time, an Exide Emergency Battery carried the process power load of about 720 amperes.

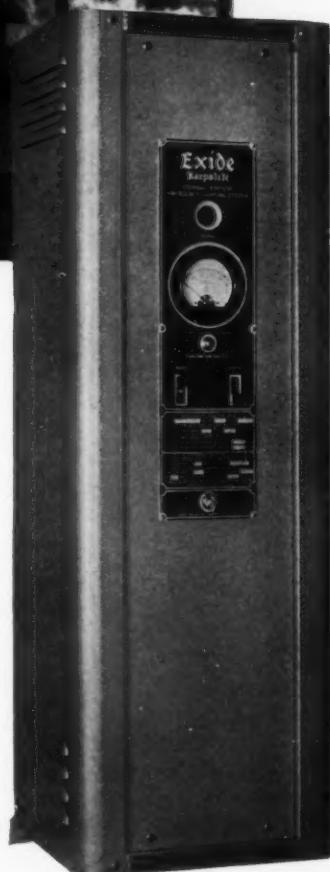
Short as this interruption was, plant officials estimated that their Exide Battery saved them more than \$50,000 in damage to their equipment.

Defense plants need this Exide protection... to safeguard vital processes which must operate continuously... to prevent injury to employees and equipment... to forestall sabotage. Exide Emergency Batteries function *instantaneously* and *automatically* whenever the normal electric current is cut off. They furnish power and keep lights burning. They are easily maintained... and are standard equipment in many of America's key industries.

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Free assistance for architects: If you're working on any project that needs protection against power failures, write or wire the nearest Exide Branch Office. Free help with plans and specifications will gladly be provided by an Exide Field Engineer, experienced in stand-by power and emergency lighting for factories, hospitals, theatres, stores and other structures.

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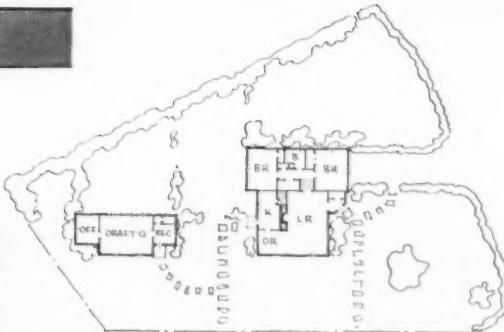


This new Exide Battery Control Unit provides instantaneous, automatic emergency protection and fully automatic battery maintenance.

Exide
EMERGENCY BATTERIES

WITH RECORD READERS

(continued from page 14)



permanent staff of four with Mr. Witmer, which constitutes the only architectural office in Portsmouth and furnishes complete architectural service. Mr. Witmer's practice could probably be called the ideal of most architects, for it ranges from a job of detailing a gatepost to complete service on a \$200,000 factory. Between these two extremes he has done houses, schools, churches, stores and offices, public works and highway bridges—a list which has grown to enviable proportions in the last eleven years and promises to become even more imposing as Portsmouth's urgent construction needs are met.

Not so easy at first

But it wasn't so easy at first. Mr. Witmer says, "Portsmouth is New England to the core, and in New England it usually takes a decade of most critical scrutiny, before the townsfolk will even begin to accept you—particularly if you've been born in Lancaster County, Pa., and haven't even a twig of a New England family tree against which to lean for the support of yourself and your credentials! It's easier now, but when I first started I pushed a lot of doorbells."

The majority of his jobs didn't come into the office without some effort. Like progressive architects in larger cities the country over, Mr. Witmer seldom loses an opportunity to seek potential clients. His name has been on many a club and Chamber of Commerce speakers' program. He advertises, too. Not extensively or blatantly, but in cooperation with activities of the New Hampshire Society of Architects—of which he is a past president and member of the current executive committee—and in semi-annual special construction is-

sues of New Hampshire's leading newspapers. Paid advertising, in his estimation, is worth its price if handled cautiously and with an eye to all its values. And publicity, which he is constantly being given by New Hampshire's newspapers as a result of his architectural achievements, is, he thinks, of inestimable value.

Partly as a result of his intelligent use of both advertising and publicity, Mr. Witmer never needs to ring a doorbell today. The work of his office—done for clients who pay for complete architectural service—can be found all along the upper Northeastern seacoast. And the members of his staff are probably much more secure in their respective jobs than their professional colleagues usually are in larger city offices.

So far as the business conduct of the office is concerned, Mr. Witmer follows, in general, the pattern of any successful architect. An accurate and detailed cost account, which includes full notations on conferences as well as reports of its technical program, is kept of every job. Every one of his staff keeps time-cards; and overhead items such as telephone and telegraph supplies, etc., are prorated and charged to individual jobs.

His buildings are constructed very largely with non-union local labor when they run under a cost of about \$15,000; and union labor is largely employed for jobs over that amount. This is explained by the fact that Portsmouth contractors use local labor primarily, and according to Mr. Witmer are not well equipped to do very large work, necessitating the in-

Just about the time the small-city architect gets his little downtown office set up, his files force him to move. So he builds his own home-and-office combination. The Witmers built two cottages, one for the home (at right in the photograph) the other for the office. And, typically, Mr. Witmer has a quiet room just for himself, for those peaceful hours of relaxation which his schedule never seems to permit

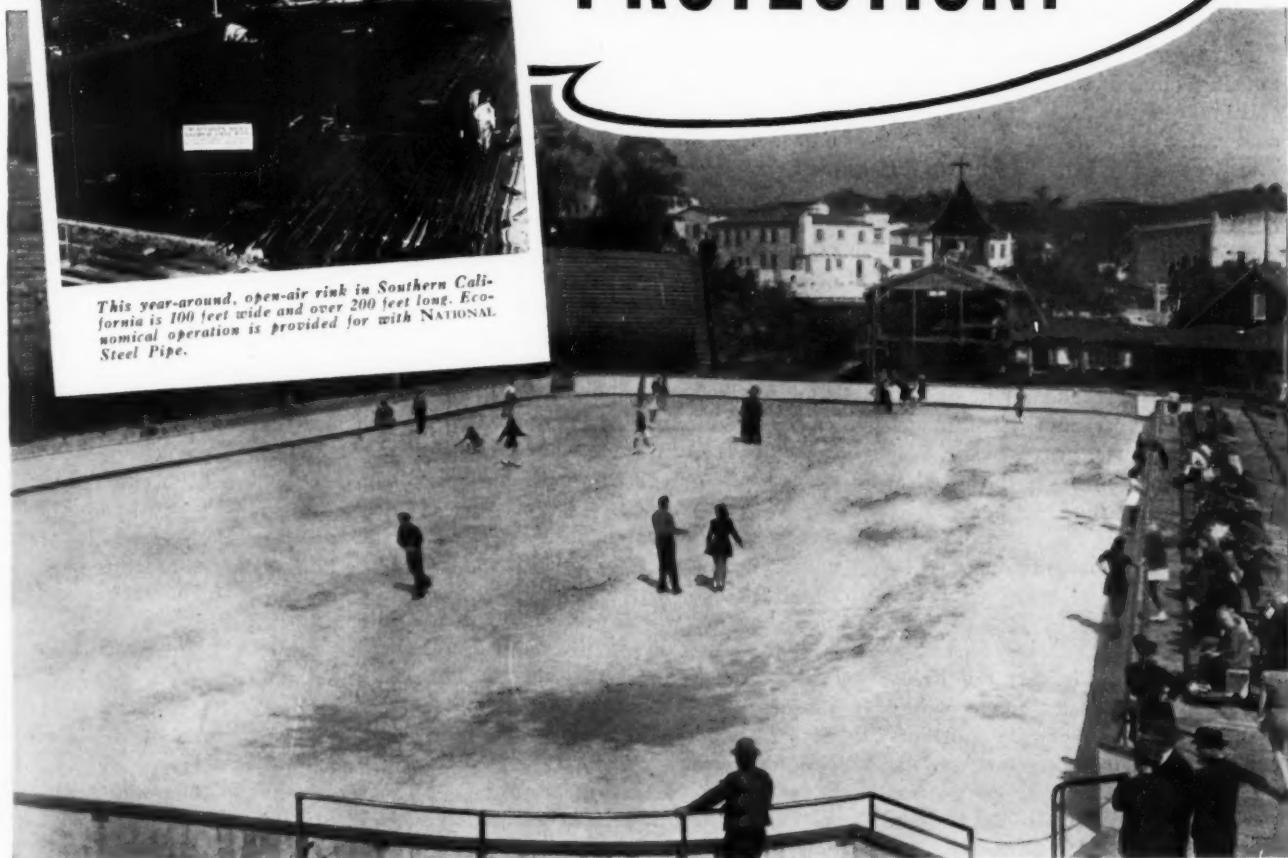
vitation of contractors from Boston or Manchester.

All jobs are not done on a general contract basis. As a matter of fact, Mr. Witmer is increasingly adopting the practice of subletting a large part of the work. In addition to attaching an extra 4 per cent to the 6 per cent fee which his office usually receives, Mr. Witmer feels that the separate-contract system gives him a more direct control of the job, which allows him to serve his client more efficiently. When the job is out of town or involves need for particularly close supervision, he employs a clerk-of-the-works, often on a part-time basis. Ordinarily, however, supervision is handled by himself or one of his staff. Incidentally, each member of the staff is especially trained to keep step with the program of each job so that each is able to direct progress in Mr. Witmer's absence.

Wouldn't change places

If you ask this successful architect if he would change places with the head of a huge office in a teeming metropolitan area, you would receive an emphatic "No." As Maurice Witmer shrewdly observes, "The suburban community and smaller city hold out opportunities which very often metropolitan areas do not afford the average business man. And in these smaller communities you get to know the townspeople, you gain their confidences and are privileged to enjoy their intimate friendship. It's true that sometimes this can be a handicap—but by and large it keeps you on your toes!"

27 MILES OF PROTECTION!



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its efficient long-lasting service has been proved many times. Designers and builders of ice and refrigerating equipment have long recognized the qualities of NATIONAL as a safeguard against premature replacements.

They have found that it has an extra resistance to corrosion—that it is dependably uniform, clean inside and out—that one of its most important advantages is its ductility—that it can be bent regularly around small radii without the least tendency to buckle or split—that it can

be welded and threaded with ease. Workmen have enthusiastically endorsed NATIONAL because of its all-around, easy working qualities—it saves time, labor, and materials on the job. Numerous installations of NATIONAL such as this one, all over the country, are demonstrating the benefits of uninterrupted, economical, and satisfactory service. Bulletin Number 5 outlines the reasons why it offers the advantages that result in a successful and lasting installation. Ask for it today.

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NEWS FROM WASHINGTON

REORGANIZING THE GOVERNMENT HOUSING AGENCIES

Rosenman report on the fire . . . Shifts in top men . . . Allocations in lieu of priorities . . . More funds for defense housing . . . Housing by co-op plan . . . Price and rent control . . . Outlook for high construction volume in 1942.

—By KENDALL K. HOYT

THE ABSORBING TOPIC in Government housing circles still is the ever recurrent question of reorganization among the agencies in Washington. The Rosenman report on what to do, it is believed, is on the President's desk.

Rumors are many and can never be guaranteed. Among the newest crop is the story that Judge Rosenman is recommending two plans—a long-range slum clearance program for after the war and an immediate program for emergency defense housing. On the latter, guesses vary from the idea that he dodges the problem of personalities and recommends a super bureau, to the rumor that he wants all defense housing handled by USHA.

Shifting top personnel

One possibility is that the President will not make the report public but will effect the necessary coordination by shifts in top personnel. Already, as included among the guesses in our story of last month, Federal Works Administrator Carmody, who is not in the best of health, has been transferred to an easier job by appointment to the Maritime Commission. Philip Fleming of the Wage-Hour Division replaces him at FWA.

That leaves the question of what happens to Nathan Straus, who holds forth at USHA despite rumors of long standing that he might be resettled in another post. Housing Coordinator Palmer is still in the picture and Mrs. Samuel Rosenman is working with him on a volunteer basis.

Meanwhile the housing situation once more is frequently a subject of newspaper editorials wherein the word "chaos" often appears.

The new plan to allocate critical materials on an industry-wide basis, in place of the old system of giving

priorities to individual companies on specific job orders, has not yet developed far enough so that its effect on construction is fully apparent. But steps are in progress, with steel recently made subject to allocations.

The result should tend to let a contractor know where he stands. Under priorities, a company with a high rating may take over the materials intended for another man with a lower priorities number. Under allocations, the intent is to coordinate the flow of available supplies with production schedules so that work which is approved will get its share of the deliveries when needed.

Vast surveys of defense requirements are in process to make the plan work. All critical items used in defense housing will be subject to the new treatment eventually, and the critical list continues to grow as defense production draws more and more on supplies in all lines.

Defense housing has been under a quota system, similar in general intent to allocations, since September when available materials were adjudged sufficient for 200,000 family units privately financed and 100,000 publicly financed, in the price class of less than \$6,000 or less than \$50 per month rent. This plan was to run for six months with a resurvey of the situation next April.

Hope for small home construction

Hope that enough of the necessary metals could be found to "make possible a rather liberal interpretation" as to the building of small single-family houses was expressed by Donald M. Nelson in a speech about a month ago. Although he said the general policy is against granting of priority assistance to construction projects other than necessary to defense, health, or safety, this is not a "stop order" on building. Many basic ma-

terials are still available in abundance. By rationing the critical materials, needless use by public bodies and others can be prevented with the hope that enough will be left beyond military requirements for the most urgent civilian uses.

OPM has requested the Division of Civilian Supply to carry out the SPAB policy of withholding supplies not needed for health or safety from private and public construction. Leon Henderson therefore broadened his Lumber and Building Materials Branch of Civilian Supply into a Construction Branch. John L. Haynes continues as head of the unit.

Numerous amendments in priorities rulings have been made. The restriction against the use of copper sheet, strip, and screen in building construction has been eased. Instead of freezing stocks of already fabricated materials as of Nov. 1, manufacture may continue at a reduced rate till Jan. 1 and thereafter is prohibited.

The use of oil burners in Eastern defense housing projects has been restored now that a petroleum shortage is no longer feared. A number of amendments have been made as to maintenance and operating items for industries.

Special rules for maintenance, repair, and remodeling of homes are in preparation but have not yet been released as we go to press.

Process of adaptation

"The next few months will witness in the building industry a process of adaptation which should go a long way toward maintaining the total volume of building, public and private, at or near the high levels of the past two years." This is the forecast of Peter A. Stone, price executive, Office of Price Administration, in a talk before the New York Building Congress last month.

The increase in public building and factory construction for defense; demand for defense housing; development of substitutes such as enameled

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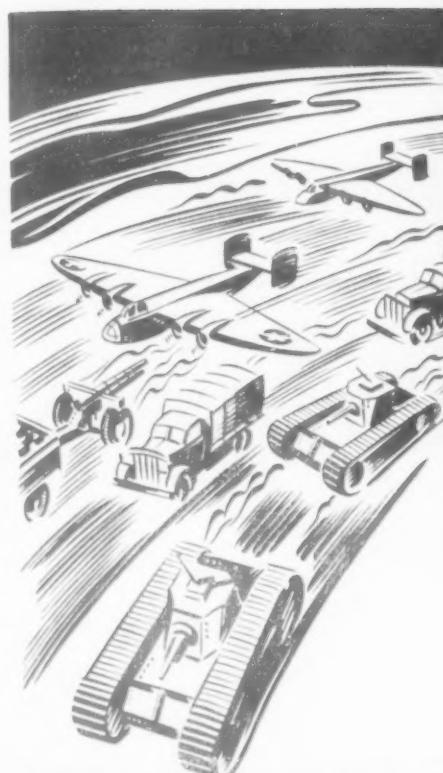
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NEWS FROM WASHINGTON

(continued from page 20)

iron plumbing fixtures in place of metal plating; and the leniency in official interpretations, as to copper wiring for example, all should help remove pessimism in construction circles, he pointed out. "The building industry will not allow unused supplies and idle resources and man power to go to waste."

Contrasting the present war with the last, when the physical volume of construction dwindled for a period of years, Mr. Stone stressed the need of price control to check inflation and prevent the pressure of rising prices on all activities both for civilian and defense uses. At present, he said, only 15 per cent of the national income is being devoted to defense and we shall have to raise that percentage to 40 or 50. Unless inflation is controlled, he predicted, we will have a post-war crash worse than in 1929 with building and the real estate market among the worst sufferers.

Price control legislation is about to go before the House as we go to press.

Outlook for 1942

Mr. Stone's forecast is borne out by a recent statement from the OPM Bureau of Research and Statistics, saying:

"The volume of all construction in 1942 may be greater than in any year since 1930, with the exception of 1941. . . . The construction industry will have a very active year irrespective of what happens to non-defense construction."

The above will hold if non-defense construction is as little as \$1 billion in 1942, it is stated, but the analysis is vague on what is likely to happen outside the defense field. The total defense construction program was less than \$6 billion in July, but it is expected that the cumulative figure will reach \$9 billion by January; \$12 billion by next July; and \$15 billion in 1943.

"Architects," the statement reads, "may run short of work in certain areas and materials yards and con-

struction workers may be hard hit. But this, it is felt, should be an incentive for devising new techniques for construction without the use of critical materials." They don't say how.

Defense housing

An authorization for an additional \$300,000,000 for defense housing is pending. A supplemental estimate of \$15,000,000, presumably for administrative expenses, has reached the House Appropriations Committee and probably will be included in a forthcoming deficiency bill.

The co-op idea is the basis for a new housing plan for defense workers starting under FHA. Groups of workers in the \$1,200-\$1,800 home class can band together and apply to FHA for mortgage insurance under the liberalized Title VI, permitting insurance up to 90 per cent of appraised value. Individual houses rather than multiple units are contemplated. The Coordinator of Defense Housing has a pamphlet on procedure.

Architects may find a new field for promotion here. The projects must

(continued on page 108)



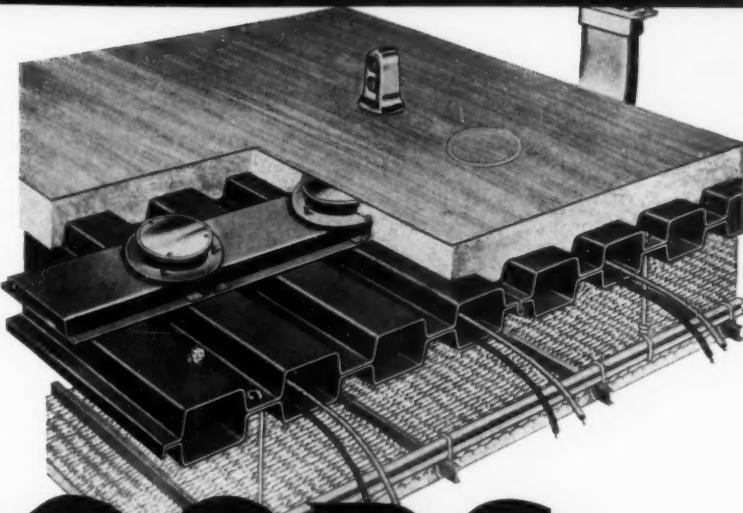
Photographs from Press Association, Inc.



BUBBLE HOUSE (see page 108): Erected in Falls Church, Va. with the aid of the Defense Homes Corporation, these novel defense homes resemble igloos during construction but can be varied in design as desired. The method of construction is as follows: An ordinary foundation, without a basement, is built. Over this is placed a pneumatic rubber form, against which in proper position are placed frames for doors and windows. Concrete is then sprayed over the form and the rubber form is deflated and removed. The house needs no interior plastering or outside painting. Left, workman sprays the concrete which solidifies over the rubber form

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Here is a section of RK-type Q-Floor, showing the cellular steel construction which performs the double function of a structural sub-floor and a system of electrical wireways. The cross-over channel, with its handholes on multiples of six inches, permits easy installation of wiring in all wireways anywhere, at any time. The concrete fill over the top of the Q-Floor units and the suspended ceiling below are also shown. This construction has been given a four-hour fire rating by the Underwriters' Laboratories, Inc.



Q-FLOORS

CONCRETE STRUCTURAL FRAME

FLOOR FILL IN A SINGLE OPERATION

Photograph from Press Association, Inc.



Through a new and unique method illustrated here, both the "quick installation" advantages and the "electrical availability" advantages of Q-Floors can be obtained with reinforced concrete structural frames. Q-Floors (UK-type shown at left) are laid as quickly on precast concrete joists as on steel beams and they immediately form safe and solid platforms upon which other trades can store materials, place scaffolding and carry on their work. Greater SPEED is the result!

By this method, all concrete used in the columns, girders, spandrels and floor fill can be poured in one operation. It is possible (1) to install the wood form work for columns and girders (2) place the precast concrete joists in position (3) install Q-Floor sections which provide for electrical underfloor wiring (4) install hangers for ceiling and mechanical systems (5) place the reinforcing steel . . . all before the concrete is poured. Shoring, except under poured beams and girders, is eliminated. This provides open areas in which various trades can work without obstruction. Fire hazards are reduced. More dry materials mean greater progress during unfavorable weather.

The PRECAST JOIST used is fabricated with two $1\frac{1}{2}'' \times 1\frac{1}{2}''$ $\times \frac{3}{16}''$ angles, back to back, in the compression flange of the joist. Angles are welded to steel diagonal shear bars. By installing these two angles in the precast joist during the process of manufacturing, it is possible to secure a straight smooth bearing surface with these angles. Joists are in turn set into the wood or steel form work for the girders. Q-Floor sections are then laid on the compression angles and screwed or welded to them. See details in illustration at left.

Additional data with suggestions and estimates furnished on request.

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RECORD

QUICK-IN

ROBERTSON Q-FLOORS

QUICK-CHANGE

NEW BUILDING TECHNIQUE MAY BE A SOLUTION FOR POST-WAR INDUSTRY

Corbett urges plans for converting war-time factories to mass production of light-weight building units

SPEAKING in Washington on Nov. 6, Harvey Wiley Corbett, FAIA, of New York, prophesied that during the post-war period the country would look to the building industry as a means for preventing unemployment and maintaining a high level of industrial production. To a group of manufacturers, Government officials, builders and architects that formed the Annual Construction Industry Conference of the Chamber of Commerce of the United States, Mr. Corbett said in part:

"If we knew the day when Hitler would attack us we would certainly concentrate every effort in preparing ourselves for that attack. If we knew the day when peace would be declared—are we going to be equally prepared for that emergency? When that day arrives this nation will, for a considerable period of time, have been engaged whole-heartedly in vast production processes. Great factories employing million of people, who have been housed near these factories, will be adjusted to year-round work at good wages, with neighborhood life following its usual channel, and becoming daily more intimate with the locality. And yet the day peace is declared none of the things which they have been producing will be needed.

Construction industry can aid

"The Government of the United States is fully aware of the tragic seriousness of this second emergency. The National Resources Board has discussed at length this problem. I believe the construction industry can make a highly valuable contribution in this field, because they can aid the Government in planning so that these great factories can quickly be turned to the production of products especially needed in peace-time building.

"Just what can we do with these great war-time factories to turn them quickly into peace-time production? The answer as I see it is comparatively simple. But let me assure you it has revolutionary implications as it relates to the building industry. Labor engaged in war production will not be willing to return to part-time, seasonal employment as has been the condition in the building world. The demand for rapid defense housing is going to demonstrate the economy of mass production of building elements completely finished in the factory, rapidly assembled in the field and one hundred per cent demountable so that we will not be saddled with ghost cities as we were after the last great war.

Plans for transfer

"I am personally convinced that what will be demonstrated in the field of housing can, with equal effectiveness, be put into production in the field of general building. It simply means greater standardization of the parts of which buildings are composed, with the resultant economies always effected by mass production accompanied by a better quality of goods. Plans should be made now to turn these great military factories into the production of interlocking, interchangeable, standardized, completely finished building units with which needed buildings for peace-time activities can be rapidly erected. If plans are properly made, the shift from war production to peace production could be handled almost overnight. Our Government must, of course, be ready to spend what is necessary to prepare for such a transfer. If we are spending billions to defend democracy, should we hesitate to spend billions to preserve it? If we can maintain the high level of national income during war, why can't we maintain the high level of national income during peace, at least until readjustment has been accomplished?

"And now what about design under these new revolutionary condi-

tions? Let me draw for you a word picture of the future of buildings as I see it.

"First, no more skyscrapers. They are not a necessity from any point of view and only cause undue congestion in the streets wherever they are grouped, and certainly in an air raid it is easier to think of people getting down to earth from a five-story building than it is from a fifty-story one.

"The second point in regard to buildings of the future: They will weigh about one-third what they do now. Masonry, as we now know it—brick, stone, cement—will not be used. Walls three or four inches thick are ample to make a complete division between indoors and outdoors. Premade synthetic materials will replace the usual things now employed. Buildings will be quickly put together out of these mass-produced prefabricated elements. They can be taken apart with equal rapidity. Changes in arrangements can be rapidly and economically made to adjust them to the practical and functional needs of the changes which are always occurring in manufacturing and business procedures.

Buildings to meet needs

"We will cease to think of buildings as permanent structures lasting for many, many years, but will conceive of buildings as being produced as motor cars are produced, with the greatest engineering skill, the most effective design and talent, the use of the best materials for each specific purpose—all kept so flexible that they can be readily changed to meet changing human needs and not be built, as they have been in the past, of great unnecessary masses of solid masonry. For centuries the human animal has been trying to adjust himself to his permanent buildings. Let us in the future make our buildings so that they meet our own human needs as those needs demand. We will then be designing buildings for human use, and the design, instead of being static and dead, will become dynamic and alive."

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around tub and washbowl add beauty
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REVIEWS OF CURRENT LITERATURE

by ELISABETH COIT, AIA

THE COVERED BRIDGE . . . By Herbert Wheaton Congdon. Brattleboro, Vt., Stephen Daye, 1941. 150 pp., 6 1/4 by 9 1/4 in., illus. \$3.50

FOR the small monumental functional building there is hardly a more perfect example than the covered bridge. And here is an architectural rendering of the subject by an architect, sympathetically written and well illustrated.

Although there are many more bridges in Vermont, only half of those over the Connecticut river are counted as belonging to the state, which gives a total of 170 for Vermont; and these examples show many different solutions.

Descriptions of various early patented trusses and their subsequent modifications by local builders, who borrowed freely on occasion from completely different systems, make good reading: Kingpost, Queenpost, Warren, Burr, Town Lattice, Howe and Long, sometimes so combined that "It takes an engineer to explain the difference!"

Stories of the builders and users and of the behavior of the bridges themselves illustrate the art.

There was Nick Powers whose unusually long single span aroused distrust. As the props were about to be knocked away he climbed to the ridge: "If she goes I'll go with her . . . If she sags an inch I'll jump off." She settled only a fraction of an inch. Then there was Lemuel Chenoweth of Virginia who presented his model in competition with some Yankee builders. Little notice was taken of his model which was not "painted in the highest art" like the others. So he set it upon abutments formed by two chairs and stood on it, defying the others to do likewise with their models. He got the contract.

The bridges themselves are the most interesting characters in the story: Bridges caught in floods and rolled downstream, the oiled treenails holding the timbers so well that often the bridges were re-erected where they landed or towed back to their

original anchorage, in contrast with the tangled wreckage of modern steel and concrete structures; the wooden bridges today doing heavy duty for which they never were designed; bridges removed because of space demands for modern traffic and found to be as sound as when they were built.

Mr. Royce's round hundred photographs, so placed in the text that no leafing back or forward is necessary, show not only definite architectural details: mass, roof slopes, portals, truss construction, abutments; they also illustrate well the setting of the bridges in the Vermont landscape. References and a full index complete this gay account of structures built "a load of hay high and wide"—and, moreover, handsome.

HOUSING FOR HEALTH . . . Lancaster, Pa., Science Press, 1941. 221 pp., 6 by 9 in., \$1.00. (Distributed by American Public Health Association, 310 Cedar Street, New Haven, Conn.)

TWELVE papers on different aspects of housing presented at conferences of the Milbank Memorial Fund, the Yale-Life Conference on House Building Techniques and of the APHA's Committee on the Hygiene of Housing.

Some of the sections have appeared at least in abstract or in mimeographed form during the past two years, such as the Committee's "Basic Principles of Healthful Housing" and Dr. Svend H. Riemer's trenchant "Family Life as the Basis of Home Planning" based on the Stockholm Study of Family Living Habits; and it is well to have these now in convenient permanent form. Of the others now published architects will be particularly interested in Dr. C. E. A. Winslow's "Heating and Ventilation of the Home," Mr. A. A. Twitchell's preliminary report on a field study of heating, lighting and noise conditions in recent housing projects, "New Possibilities in the Low-Cost Home Construction" by Mr. Robert L. Davison of the John B. Pierce

Foundation, and a summary of findings of the National Health Survey on "Certain Characteristics of Urban Housing and Their Relation to Illness and Accidents."

CONTOURSCAPING. By Ralph Rodney Root. Chicago, R. F. Seymour, 1941. 246 pp., 7 1/2 by 10 in., illus. \$10.00

YOUR GARDEN IN THE CITY. By Natalie Gomez. New York, Oxford, 1941. 247 pp., 5 3/4 by 8 1/4 in., illus. \$3.00

In "Contourscaping" a landscape architect of long practice discusses the theory of landscaping as a three-dimensional fine art, as distinguished from the results of "drafting room combinations of decorative plant material . . ." and "the opinion of the many . . . that anyone having anything to do with horticultural things is a landscape architect." Thoughts on form, light, color, movement, on orientation and soil as they may affect plant color and form, and on planting to diminish noise compose a work of pure theory, mastery of which requires of the reader a fair degree of curiosity and some skill in assembling statements from word arrangements.

Your city garden, whether back yard, terrace, roof or window box, is competently handled by the director of the Garden Center of the Little Gardens Club of New York, as to design, construction, planting and cultivation for maximum four seasons' enjoyment: What fertilizers, how much and how applied, what plants for which location, and remedies for troubles—the whole concise well illustrated and well indexed.

MEDIAEVAL MONUMENTS AT THE CLOISTERS. . . . By James J. Rorimer. New York, Metropolitan Museum of Art, 1941. 16 pp., 25 plates, 10 1/2 by 14 in. \$2.50

THE FLORA OF THE UNICORN TAPESTRIES. By E. J. Alexander and Carol H. Woodward. New York, N. Y. Botanical Garden, 1941. 28 pp., 6 1/8 by 9 in., illus. 25 cents

Two publications contributing to one's understanding and enjoyment of

(continued on page 32)



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REVIEWS OF CURRENT LITERATURE

(continued from page 30)

collections at the Cloisters, a branch of New York's Metropolitan Museum of Art.

Mr. Rorimer, the curator, assembles by place of origin his material, consisting of Romanesque and Gothic architecture and architectural details,

tapestries, sculpture, furniture and metal work, outlines the history, describes the items and shows their acclimatization at "The Cloisters" which was especially designed to receive them, the story illustrated by over 50 photographs.

Among these items one, unique in

its genre in design, workmanship and condition, the Unicorn Tapestries, is described by the editor of the *Journal* and the assistant curator of the New York Botanical Gardens in a booklet written primarily to record the identity of as many as possible of the 101 distinct plants forming a background for the action of the Hunt of the Unicorn. The booklet does more than this. For the short historical note, the uncommonly expressive, and indeed, exquisite, skeleton drawings by Walter Graham, and the photographs, including many detailed enlargements, give much of the essence of the work: design technique and feeling. In gratitude to the authors for their contribution to our art be it said that they have identified 85 of the 101 plants.

CURRENT PERIODICAL LITERATURE

OUTDOORS AND IN: Gardens as Living Space. By Garrett Eckbo. Magazine of Art, Washington, Oct., 1941, pp. 422-7, illus.

INTEGRATION of indoor and outdoor living space is found all through history: Egyptian villas; the less pretentious Roman development such as that at Pompeii; the mediaeval cloister; Persian, Indian, Chinese and Japanese gardens, as well as Moorish, Spanish and Mexican patios—all secluded, private, structurally enclosed outdoor living rooms. The Persians had a word for it: bagh. We need one to help us think in terms of site-space design, rather than of houses and gardens, and produce greater decentralization of house and infiltration of garden before arriving at the limit imposed by need of climate-control within the house. Photographs, plans, and text well illustrate how site-space development stretches the housing dollar.

... SOME NOTES ON ICELANDIC ARCHITECTURE. By Frederic R. Stevenson. Journal of the Royal Inst. of British Architects, London, Sept., 1941, p. 191

MODERN Icelandic architecture shows definite blood relationship with that of Scandinavia, especially with Denmark. There is no brick on the island, and volcanic stone is so difficult to work that it is used now only as a

(continued on page 34)



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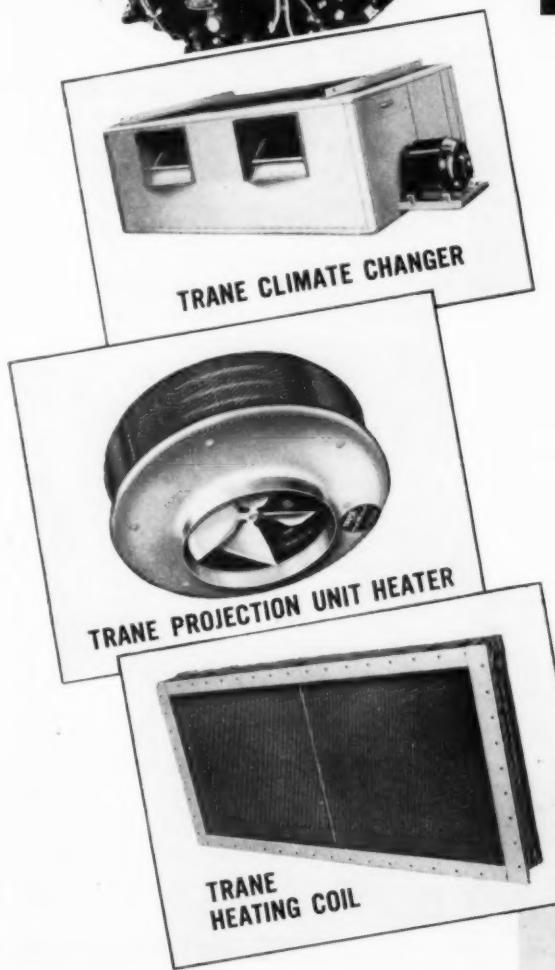
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After assembly, the Wright engine is immediately placed in what are known as "test cells" where the engine is operated and tested to insure perfection in every detail. A standard fixed temperature greatly simplifies this procedure and facilitates uniform testing. This is accomplished by the use of an arrangement consisting of two rows of Trane Steam Heating Coils and four rows of Trane Water Cooling Coils. In addition, over forty Trane Climate Changers are used for heating, cooling and ventilating the operators' rooms which are located between each pair of test cells.

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L RECORD

DECEMBER 1941

REVIEWS OF CURRENT LITERATURE

(continued from page 32)

tour de force. Reinforced concrete is universal, used even for garden walls, and Icelandic workmen are very expert in handling it. Though towns are small, people are very conscious of what is good planning and what isn't, and almost every little com-

munity has its master plan ready.... The country's natural hot water has long been privately harnessed for home heating (you just dig as you would elsewhere for cold water); and Reykjavik has already well in hand the first successful scheme for communal heating.

DON'T BLAME THE ARCHITECT. By George M. Waddill. *School Executive*, New York, Nov., 1941, pp. 32-3

SCHOOL PEOPLE complain that architects fail in planning school buildings to meet needs of teaching and other school activities. Actually the architect is often not given opportunity to study the problem: The building is wanted by the opening of the next school year, meanwhile the school superintendent is too busy to work with, or to arrange teacher conferences for, the architect, who may have limited experience in his field, may not know that the art room requires sinks, or realize the economy in maintenance of tile or face brick, may have no idea of the amount of blackboard space really needed or how high it ought to be, or of the number and variety of things needing storage.

OLD STYLE MUSEUMS WON'T DO. By Alma S. Wittlin. *The Studio*, New York and London, Sept., 1941, pp. 72-3; 87

FOLLOWING articles on Washington's classical National Gallery and London's Tate, this "plea for new conceptions in planning and presentation" suggests a wider discontent doubtless than the author intended. Recording briefly the rôle of the 19th century "cross between a storeroom of a ducal residence and a natural history showroom" and, in contrast, the appeal to the spectator's reason with resulting emotional response, Dr. Wittlin hopes that "concrete proposals for the rearrangement of public collections may be dealt with in these pages." Conceivably some of the architects who have thought about this matter are ready either to deal independently with it or to offer Dr. Wittlin collaboration.

A.S.A. PROJECT A62 FOR COORDINATION OF DIMENSIONS OF BUILDING MATERIALS AND EQUIPMENT. New York, American Standards Association, 1941. 61 pp., 8 $\frac{1}{2}$ by 10 $\frac{3}{4}$ in., illus. \$1.00

THIS, the first report of the cooperative project sponsored in 1939 by the AIA, American Standards Association and Producers' Council, shows application of the 4-in. increment in masonry, whether of natural stone, concrete and cast stone, or structural clay products; in structural wood; in wooden doors and windows, and in metal windows.

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THE CONSTRUCTION OUTLOOK FOR 1942

"An incipient construction boom stimulated in recent months by vast Federal defense expenditures has been effectively hobbled; basically, by shortages of critical materials; more directly, by recent actions of the Supply Priorities and Allocations Board. In spite of this the prospect for a relatively large dollar volume of construction in 1942 is exceedingly good. While non-defense construction will be pared to a minimum, defense construction in many classifications is expected to increase."

THE QUOTATION ABOVE should calm the minds of those who felt that the SPAB order of Oct. 9 decreed the virtual stoppage of construction activities. It forms part of a statement on construction estimates for 1942 issued by the Statistical and Research Division of F. W. Dodge Corporation and suggests what Dodge officials anticipate will be the case—"for 1942 a total dollar volume of new construction greater than that of any post-depression year except 1941." Thus, although Dodge estimates indicate a 32 per cent decrease in dollar volume of total construction for the 37 Eastern states for 1942 as compared with 1941, there is little basis for black pessimism.

But scarcities of some critical materials will certainly operate to effect what will probably be a drastic curtailment of non-defense construction. And to many an architect, engineer and builder this fact will necessitate a rapid adjustment to a radically changed situation so far as the market for certain types of professional and technical services is concerned. The extent to which such adjustment will be required depends on the status of individuals involved and a realistic analysis of recent trends and events as these may have a bearing on developments in any given locality.

For this reason the following comments can reflect only a general situation as it is conservatively estimated for 1942. It seems obvious that defense needs and controls instituted by defense planning agencies imply an uneven distribution of projects and an increasing tendency toward specialization in needed types of buildings. Here are F. W. Dodge Corporation dollar volume estimates for the 37 Eastern states for 1942:

1. RESIDENTIAL BUILDINGS—Total, \$1,225,000,000. Of this one- and two-family houses account for \$1,075,000,000. Most of the 1942 residential construction will unquestionably be done in the 275 or so defense areas and will fall under the heading of "defense housing." The *number* of new dwelling units may run to 290,000 or some 27 per cent less than the estimated total during 1941. Both dollar volume and number of residential units will be largely determined by the extent to which critical materials will be made available for house building.

2. MANUFACTURING BUILDINGS—Total, \$1,175,000,000. Continuation of the current defense plant expansion program should maintain the volume of this building classification at the 1941 estimate level.

3. COMMERCIAL BUILDINGS—Total, \$330,000,000. Curtailment of office and loft building construction and bank, store and restaurant buildings makes probable a 33 per cent decline from 1941 estimates. However, defense-stimulated projects will about maintain the 1941 level for such buildings as garages, service stations, hangars and warehouses.

4. OTHER NON-RESIDENTIAL BUILDINGS—Total, \$355,000,000. Included in this classification are such buildings as hospitals, public buildings, religious, social and recreational structures and miscellaneous non-residential buildings. A marked decline from the 1941 volume is to be expected, for the only such projects that will go ahead are those that are necessary for direct national defense or are essential to the health and safety of the people.

NO "STOP-BUILDING" EDICT has been issued by any Government agency or bureau. The SPAB order did not limit construction projects which do not require critical materials nor did it aim to prevent the sale or use of already existing building products containing critical materials. The SPAB order, in effect, did three things:

1. It decreed that the country's 1942 construction program would be controlled.
2. It limited priorities assistance to projects necessary to defense and for the health and safety of the civilian population and thereby implied that construction would be concentrated primarily in designated defense areas.
3. It served notice that availability of critical raw materials to building product manufacturers would be curtailed with allocations of these (mostly metals) sufficient for only a limited construction program.



Gottsch

SAFEGUARDING CIVILIAN AND A

Community facilities are sorely needed in defense areas, and their construction is essential if the success of the defense program is to be assured. For "it is the people who count—the people who produce the weapons of defense and the men who use these weapons. Safeguarding men in uniform when they are on leave and defense workers and their families against conditions harmful to health and morale is, therefore, an integral part of our defense effort."

By PAUL V. McNUTT, Administrator, Federal Security Agency, and Director, Office of Defense Health and Welfare

THE DIFFERENCE between success and failure in the defense program of this Nation may depend in large degree upon the health and morale of its people. Battleships, tanks, aircraft, ammunition, and guns are not enough. It is the people who count—the people who produce the weapons of defense and the men who use these weapons. Safeguarding men in uniform when they are on leave and defense workers and their families against conditions harmful to health and morale, is therefore an integral part of our defense effort.

The location of camps and plants for defense purposes was determined in accordance with military and naval strategy, and could not take into account the availability of public facilities and services. With the development of each new military site or industrial center, there has arisen in many areas a serious shortage of decent housing facilities. The provision of housing accommodations for defense workers in areas where there were shortages was, however, speedily recognized as essential, and Congressional measures authorizing the construction of such units were adopted. But new houses must be supplemented by community facilities. Water supply systems, sewerage systems, sewage treatment plants, hospital facilities, and recreational facilities must be adequate to serve the large numbers of new people moving into defense communities.

When a city follows a normal pattern of growth and gradually increases in size and population, community facilities are also developed gradually to meet its needs. But when dozens of new cities spring up overnight, as they have under the defense program, we find a dangerous lack of community facilities prevailing and inability on the part of the locality to provide for the thousands of new families brought there by defense needs. Less dramatic perhaps than the launching of a battleship or the construction of a powder plant, but quite as essential to the success of the defense program, is the construction of sorely-needed community facilities in these overcrowded defense areas.

What is the actual situation back in the local communi-

ties suddenly confronted by new and unusual demands for community services?

The Office of Defense Health and Welfare Services under my direction has participated in studies collecting information on deficiencies and shortages in essential facilities. It found cases like these everywhere:

In one town, the children of defense workers are attending classes in the basement of a building next to the boiler room, access to which can be obtained only by crawling through a window.

In another, the dumping of large quantities of sewage from a nearby camp has caused the inadequate sewer systems to back up and flood the streets.

In still another town, a steel center, each gallon of water available is being used and re-used 16 times a day, the same water for both industrial and drinking purposes.

Here is a concrete example of how lack of facilities may impede rearmament preparations. Steel is one of the basic materials in military production, and to make steel you must have water. Any depletion of the town's water supply, because of lack of rain, or a flooding of the reservoirs because of too much rain, would delay manufacturing.

Similarly convincing evidence of the need for hospital and recreational facilities is to be found in every crowded defense town. Soldiers on leave gathered at street corners or aimlessly wandering the streets are mute testimony to the importance of a community center where they can relax, write letters, meet friends, and engage in wholesome forms of recreation. The lack of adequate hospital and clinic facilities may have serious consequences threatening the health and efficiency of those in defense production.

In the early part of this year, Public Law No. 137, authorizing \$150,000,000 for construction of community facilities, was enacted by Congress. Under this measure Federal funds are available to provide school buildings, hospital and health centers, recreational facilities, water works, sewerage systems, filtration plants, sewage disposal facilities, and other facilities to take care of the influx of people into localities near military camps, naval bases and

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stations, and newly located industrial plants, where such facilities cannot otherwise be provided.

Federal leadership and financial assistance to state and local governments are helping to provide such facilities in the places where they are most urgently needed. In the four months since June, 1941, when this measure was signed by the President, 699 projects for community facilities have been approved by the President. Of this total, 171 are in the field of sanitation, 77 are hospitals and health centers, 192 are schools, 243 are recreation centers, and 11 represent miscellaneous projects. Projects related to operations of the Federal Security Agency are passed on by the appropriate units of this Agency and a "certificate of necessity" furnished to the Federal Works Agency, which is the administering agency under this law and receives applications for such projects.

Building community facilities is not a frill. It is a necessary adjunct to our military and industrial defense activities. In many instances, the lack of such facilities has seriously impeded the progress of the defense program. In one area, defense plants have experienced difficulty in getting skilled workmen to move there because of the shortage of school accommodations for their children. Crowded, unsanitary and unpleasant living conditions reduce the efficiency of those engaged in defense production; coupled with bad water supply and sewer systems, they raise the spectre of epidemics which might seriously interfere with defense work.

We have no time to lose now. No step necessary to safeguard health and morale can be overlooked by this Nation. The projects already approved and under construction are a promising step in the right direction. As more communities begin to feel the effects of defense expansion, and community needs increase, additional funds will be necessary to provide for these additional demands. In any case, non-military defense construction—which is essential to the progress of the defense program—must keep pace with construction of military and industrial buildings and defense housing.

AN OFFICIAL STATEMENT FROM THE WAR DEPARTMENT

AN ARMY POST is in many respects a little city in itself. Obviously the functions of administration, personnel training, warehousing, maintenance and the housing of enlisted and commissioned personnel generate need for a vast amount of construction. Because the job of the army is a specialized one, the types of buildings which are required are also of a certain specialized character; and to this extent an army post can almost be regarded as a self-contained unit with buildings which have few counterparts in civilian existence except so far as the technicalities of their construction and equipment may be concerned.

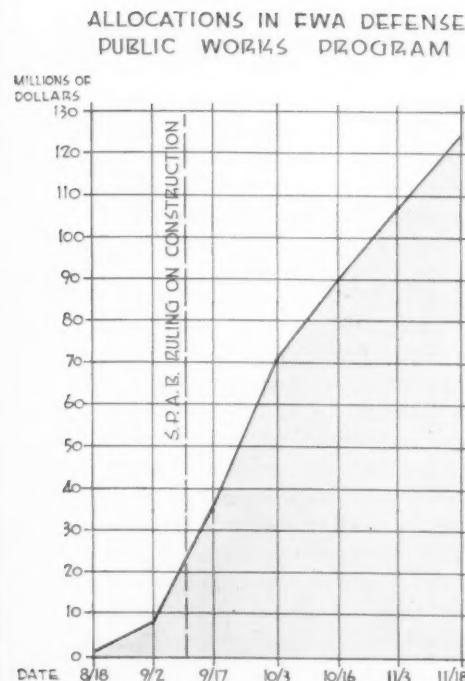
But however complete may be the development of a modern army post, facilities for recreation, temporary housing and transportation are necessary to fill the needs of post personnel who may be on leave or otherwise temporarily relieved from an official status. As Kipling aptly observed, "Single men in barracks don't grow into plaster saints"; and although the USO program is providing better recreational facilities than army men have ever previously enjoyed, it is inevitable that requirements for such facilities will overflow the limits of an army post into the field of civilian administration.

Any town within easy traveling distance of a sizable army post will probably find that its recreational facilities are overtaxed and inadequate for the needs of our expanding military forces. In most instances more theaters, more dance halls and more inexpensive restaurants—where a man can get a glass of beer in pleasant, wholesome surroundings—should be provided. In addition, hotel accommodations for visitors are in a great majority of cases sorely overtaxed; and the need for small houses for the use of married personnel both of enlisted and commissioned rank, and civilian employees of the army, has been shown in several cities and could probably be easily demonstrated in several others.

In suggesting that facilities of these types be increased by developing whatever new building may be required to provide them, the army does not, of course, wish to encourage needless over-expansion in any instance. But it is convinced that with proper planning these provisions can be made in structures that are adaptable to many other uses when, and if, the military will no longer have use for them. This suggests that every city near a military establishment ought to be surveyed with these requirements in mind. This is being done at the present time by many Governmental agencies that have become involved in the housing program. The situation regarding the present availability of such needed construction is being considered in view of the constantly increasing pressure. Immediate steps are being taken in particularly acute areas to eliminate deficiencies in facilities by providing new construction or by rehabilitating existing buildings to fill the stated needs.

WHAT TYPES OF NEW CONSTRUCTION A

In its famous order of Oct. 9, SPAB characterized projects for which priorities assistance would be given as "projects . . . either necessary for direct national defense or . . . essential to the health and safety of the people." With defense building already nearing peak activity, the RECORD looks at non-defense building, finds "essential" needs loom large, and reports a plan for meeting them.



Rapidly mounting allocations in FWA's Defense Public Works Program will soon use up the \$150,000,000 appropriation to build much-needed community facilities. To grant all applications would have required many times that appropriation.

What happens when a town newly bursting with defense activity finds its population suddenly doubled? How badly are the town's facilities overloaded, and how much new construction will be required? What types of construction projects? Here is a great field for building, as yet largely unexplored and little understood.

Obviously there is no mystery about the need for defense housing (AR 11/41), which has been much in the public prints, and which is at least well programmed. But what about the other types of buildings that must come with new housing in the 275 defense areas? Certainly new schools will be required, new hospitals, new recreational facilities, new streets, water lines, sewerage facilities, new fire and police stations. These and many others will be necessary for the "health and safety of the people."

The quoted phrase, incidentally, is from the now-famous SPAB order which limits priorities assistance to building projects either necessary to defense or "essential to the health and safety of the people." It is evidence that the need is recognized in the priorities and allocations system.

The need is more tangibly recognized in the program of Defense Public Works, with its \$150,000,000 appropriation for new community facilities in defense areas. But this money is virtually gone already, and the program is terribly inadequate. Also important in this connection is the Public Works Reserve of the National Resources Planning Board, which is programming a great amount of such building throughout the nation as a post-emergency measure.

But what of the future of a defense community? How is the immediate need to be met without saddling the town with ghost areas and useless buildings after the emergency is past?

It is not surprising that few communities have anything like adequate data on the immediate need, much less any logical plan for the integration of necessary new buildings into the community's future pattern. No community could have been prepared in advance for such boom conditions as have burst upon them, or could be expected to undertake by itself the financing of everything now required. As to the planning, however, the impact of defense must be reckoned with.

The community has much at stake. Obviously it cannot simply ignore the new people in its social plans, trying to build a barricade between the old town and the new. The town's citizens will suffer along with military personnel and defense workers, if its facilities are inadequate "for the health and safety of the people."

And, equally obvious, the community pattern will be changed for years to come by the present defense construction. To ignore the problem is to invite haphazard construction, by either Federal Government or private enterprise, building neither suited to the locality nor useful after the emergency. There is also the risk of overbuilding, if no overall control is exercised. Only by local initiative can such hazards be avoided. Fortunately, community and regional planning has progressed rapidly in recent years, both in technical advancement and in public acceptance, and needs only to be geared up to the defense exigencies.

Basic planning requirements are four: 1. A thorough and detailed analysis of new and expected increases in population due to defense, together with best estimates of what increases will be permanent; 2. An item-by-item inventory of construction needs, from schools to taverns; 3. At least a skeleton plan for the community's future pattern; 4. An integration of present and future requirements.

Such a plan is by no means beyond possibility. And with the plan prepared the community has the basis for constructive action in several directions: 1. The plan would become a route map suggesting the way of getting the new construction started; 2. It would be insurance against poorly conceived buildings and haphazard land development; 3. It would tend to prevent undue expansion; 4. It would influence the new construction toward maximum usefulness in the post-emergency period.

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What does all this imply in actual building needed? Specialized local problems in the 275 defense areas will probably result in 275 solutions. But with populations increasing spectacularly, and with the Government's determination to maintain the American institutions that safeguard the health and safety of the people, a tremendous building potential is obvious.



A CASE IN POINT — PORTSMOUTH, N. H.*

ONE OF THE FEW communities in which these problems have been seriously tackled is Portsmouth, N. H. This small New England city, now buzzing with activity in the navy yard, gives a fair picture of the strain on a community's existing buildings. Portsmouth expects its population to double by next year. The situation is so acute that a local newspaper* has characterized it thus: "It is no exaggeration to state that Portsmouth now has the greatest problem in its

318-year history and that its future for the next 318 years will be vitally affected by the way this problem is handled."

So Portsmouth has tackled its problem, recognizing diagnosis as a prerequisite to prescription. An alert group of citizens has carefully analyzed its needs and prepared a revealing report. It is the type of down-to-earth analysis which architects and other planners are well equipped to help compile in their own localities.

The Portsmouth study, used here to help clarify the term "essential building" and to introduce a 32-page section of buildings of the type required in defense areas, has a triple significance: 1. Its survey of the need for new construction projects serves to dramatize, if not to measure, the requirements of other areas; 2. It presents a workable method of attacking the planning problem; 3. It indicates the types of buildings which will be required to maintain both military and civilian morale.

POPULATION TO DOUBLE

To sum up briefly what the defense effort is doing to this New England seacoast city, the 1940 census was approximately 15,000; the 1942 census will be 31,000 or more. The trading area is rocketing from 60,000 to more than 100,000. In eight months' time, better than \$17,000,000

*To J. D. Hartford, publisher of The Portsmouth Herald, and to Franklin E. Jordan, The Herald's very able managing editor who undertook the formidable task of getting the entire city's defense problems down into facts and figures, we wish to pay very special tribute.** Their example is a challenge to officials, groups or civic-minded individuals in many another defense area and community. Mr. Jordan's findings, originally published serially in the newspaper and later republished in a booklet *Portsmouth and National Defense* constitute the factual basis upon which this study is built.

**The Herald wishes special credit extended to the Portsmouth Planning Board, the City Council, the State and the Seacoast Regional Development Associations; the National Resources Planning Board, the Department of Commerce, Federal Bureau of Investigation, other Governmental agencies; the National Board of Fire Underwriters and the International City Managers' Association.

worth of defense projects have been completed or contemplated—this in a city whose total assessed valuation was only \$20,000,000. Portsmouth's credit was excellent—\$764,000 borrowed; a borrowing capacity of \$260,000 remaining. However, needed new municipal facilities alone (page 47) add up to nearly \$2,225,000. Hence the Planning Board's request to the Government for about this amount.

AFTER THE EMERGENCY . . . Judging from World War experience and tempered by the fact that a two-ocean navy is being built, post-emergency population will probably drop from around 31,000 to 20,000. To avoid overbuilding and excessive financial burden therefore becomes a primary factor in planning. The brief summaries below show how some of the more important problems have been analyzed to serve both war and peacetime needs.

BUILDING REQUIRED TO MEET THIS SITUATION

HEALTH

In general well equipped to serve public health, the city does need either a new wing added to the hospital or a Community Health Center; also a public comfort station (see map). Both of these would be desirable permanent additions when the emergency ends. In all, facilities needed to handle the defense problem total \$144,000.

SAFETY

The Fire Department's building needs consist of two new sub fire stations (see map) totaling \$28,000. If the present one-room school in the Plains area is converted to this use, a saving of \$7,000 would be effected. A good building code would add greatly to civic safety. A fire drill tower (\$7,000) is also highly desirable. For the Police Department, the only present building need is a new photographic laboratory.

EDUCATION

Last year's student enrollment of about 2,300 filled the nine Portsmouth schools. Although the emergency population increase will bring more than 1,200 new school children, the Planning Board figures that it is unwise to provide new classrooms for more (see *After the Emergency*, below, for explanation). For 1,200 additional pupils, 40 more classrooms (30 to a room) are needed. However this is figured, it implies three new school buildings to cost about \$993,000 (see map). Any slight overbuilding that may result from even this conservative estimate will be concentrated in the new 16-room Heights school, required to serve 480 youngsters housed in PBA homes.

AFTER THE EMERGENCY . . . Overbuilding of the school plant is disastrous, as roughly half of education cost is maintenance and repair. To avoid this and yet handle the extreme defense need, the half-day-session plan could be introduced. Generally disliked by educational authorities, it seems preferable to post-war overbuilding headaches. The proposed expansion of the school plant would thus emerge from the crisis as little more than adequate to meet the city's permanent requirements.

HOUSING

About 1,500 new dwelling units are either completed or under construction (800 PBA; 169 Defense Homes, plus private projects). These will care for an increased population of about 7,000. At Kittery, Me., the navy has built 600 dwelling units for Yard workers. Housing in neighboring towns plus other projects in Portsmouth must handle the additional population.

AFTER THE EMERGENCY . . . Relief problems may be acute. If new industries are started, these will help immeasurably. To handle the relief problem, the new housing could provide shelter; slum clearance (and city woodlands) could supply fuel; the community could probably provide necessary clothing; city lands could be made into municipal gardens; relief workers could furnish labor, and a minimum of cash would be needed.

TRANSPORTATION

Street widenings and extensions, bridge repairs and new parking facilities represent a total need costing \$207,000. Improvements to the airport ("disowned by all who should father it") to make it into an advanced base would cost an additional \$250,000 (army estimate). An increase in bus and truck traffic might well justify a municipal bus terminal as an essential new facility—to cost around \$50,000. A municipal or state pier may be indicated. Any or all of these improvements would fit in with post-war uses.

WATER

Portsmouth had a serious water problem before the emergency; it is now acute. In addition to a new 53-well field and the Federally supplied PBA system, a large new single source is vital. Possible solution: reaching out to the Winnicutt River, erection of 2 small dams, a filter system, pumping station and connecting mains. Total cost of doubling system: \$1,011,000.

AFTER THE EMERGENCY . . . The new, large single source (Winnicutt River) could be used to serve the city; the smaller fields could be shut down and held in reserve—materially cutting operating expense and providing an important safeguard for the future.

RECREATION

Portsmouth is happily supplied with parks for mothers and small children, athletic and recreation facilities for school children and a permanent Army and Navy Building which can take care of some USO needs. But if the whole community, defense workers as well as soldiers and sailors is to be supplied with appropriate recreational facilities, a real need is an adult municipal gymnasium and auditorium. If added to the Army and Navy Building (to be used by USO for the duration), as recommended by the Planning Board, this would cost approximately \$60,000. Either the gym or a separate hall would provide facilities for dances and parties. For an all-around sport center, a real sports arena—for track, hockey, boxing, wrestling, football, etc.—to cost around \$50,000, would be an excellent provision.

IMPACT OF DEFENSE ON PORTSMOUTH, N. H.

ESSENTIAL BUILDING NEED—emergency and thereafter

POPULATION SUMMARY*

1940 CENSUS	- 15,000
ADDED, TO DATE	- 7,000
POTENTIAL 1942	- 9,000
TOTAL	31,000

* FIGURES APPROXIMATE. GROWTH GREATER PORTSMOUTH TRADING AREA WAS 50,000, IS 80,000; WILL BE 100,000.

KEY TO MAP

NEW HOUSING* (50 UNITS OR MORE)

- 800 UNITS (PBA)
- 169 UNITS (DEFENSE HOMES)
- 80 UNITS (PRIVATE)
- 60 UNITS (PRIVATE)
- * POTENTIAL TOTAL OF NEW DEFENSE UNITS: 1500

CONTROLLING FACTORS

■ NAVY YARD

NEW FACILITIES—(INCLUDING 600 NAVY HOMES AT KITTERY)
APPROXIMATELY (UNOFFICIAL): \$23,000,000

DEFENSE INCREASES—

WORKERS (1940) 1600, (JULY 1940) 6000,
ANTICIPATED: 12,000 OR MORE.

■ HARBOR DEFENSES

NEW FACILITIES—
APPROXIMATELY \$1,300,000

DEFENSE INCREASES—
(JULY 1940) CARETAKER STATUS
NOW: (APPROXIMATELY) 1500
ANTICIPATED: 2500

NOTE: Numbers below refer to circled numbers shown on the map.

HEALTH

1. **10-Bed Addition to Hospital (\$25,000) or a Community Health Center (\$30,000).** Present hospital adequate for 25,000 population; new contagious ward needed for a larger population. But post-emergency population will probably be about 20,000; a new Health Center would both serve emergency needs and become an important permanent addition to the city—diagnostic and minor treatment center for baby, prenatal, dental and maternity care and treatment of social diseases. Health officer and Red Cross would also have headquarters here. It could also serve a long-range function as educational center for the prevention of disease and accident.

2. **Public Comfort Station.** Centrally located; inexpensive (\$1,000). A highly desirable facility to serve the new population and the post-war city. Erected in connection with a city parking lot, maintenance would be negligible.

EDUCATION

3. **Senior High School (\$750,000).** To serve present senior high enrollment (plus 9th grade which would be coordinated "for the duration," leaving the junior high adequate for the emergency) plus new defense population students, a new high school for 1,300 is necessary. This would be a permanent part of the city's school system. To avoid overbuilding (half of education cost is maintenance and repair) half-day sessions could be introduced, which would care for any foreseeable population potential.

- 3a. **Present Senior High School,** which has recently had an addition. To enlarge to serve the new population would be patchwork. Therefore, the new senior high (above) is proposed. The present senior high building could serve as one of two badly needed city facilities—a new city hall or the city's future trade school (to be operated "for the duration" by the Federal Government).

4. **New Heights Grade School—** 16 rooms for 480 elementary pupils (all PBA housed; see map): \$158,000. This school to be knowingly overbuilt for possible later conversion.

5. **New Plains School—** 8 rooms for 240 elementary pupils: \$85,000. New Defense Homes houses and other near-by private developments (see map) require a new school. As many of the new population will remain in this area after the emergency, the school would be a permanent addition to the city's system.



SAFETY

6. **Plains Sub Fire Station** (with equipment): \$24,000. This would serve the new population of 1,600 or more in the Plains sections, many of whom will be permanent additions. To save money, present one-room Plains school might be remodeled into the new sub fire station (approximately \$7,000 saving).

7. **New Two-Unit Sub Fire Station** to serve Atlantic Heights housing, including the new 800-unit PBA houses: \$24,000.

RECREATION

8. **Gymnasium-Dance Hall—** Either independent or added to present USO building (the permanent Army and Navy Building which will be used for the duration by USO). Approximately \$59,000.

TRANSPORTATION

9. **New Municipal Parking Lot.** Two are already in existence; but the traffic problem is far from solved.

10. **Proposed Street Extension** to help unsnarl serious traffic condition and provide more direct route to PBA houses and other Atlantic Heights housing.

OTHER NEEDED NEW BUILDING

A new Pumping Station; Indoor Swimming Pool; Orchestral Shell; possibly a Municipal Golf Course and a Municipal Bus Terminal. Streets, Sewers, Equipment of all sorts, etc. City is fortunate that \$3,150,000 by-pass highway and bridge (see map) was completed in 1940; other defense areas will find a similar traffic artery a primary need.

WHAT DOES ALL THIS MEAN NATIONALLY?

Widely differing needs will be found to exist in the various defense communities. Only by precise knowledge of a specific community's problem can indispensable building be determined. But as an indication of the range of building which may prove essential in one locality or another, we submit the following check list and the 32 subsequent pages.

HEALTH . . . pages 49-56



NEW HOSPITALS
ADDITIONS TO HOSPITALS
NEW UNITS OF HOSPITALS
(NURSES' HOMES, LABORATORIES, ETC.)
PUBLIC HEALTH CLINICS
AND ADMINISTRATIVE OFFICES
COMMUNITY HEALTH CENTERS

INCINERATION PLANTS
SEWERAGE DISPOSAL SYSTEMS
WATER SUPPLY
AND ATTENDANT STRUCTURES
FOOD INSPECTION CENTERS
PUBLIC COMFORT STATIONS
RESEARCH LABORATORIES

SAFETY . . . pages 57-62



FIRE STATIONS
SUB FIRE STATIONS
DEPARTMENTS OF CORRECTION
POLICE STATIONS
JAILS
TELEPHONE EXCHANGES
RADIO STATIONS
LIGHT AND POWER PLANTS
AIR RAID SHELTERS
EVACUATION CAMPS
RED CROSS WORKSHOPS
NEW CITY HALLS
WELFARE OFFICES

COUNTY FARMS
HOMES FOR THE AGED, INFIRM
OR STATE CHARGES
CLOSELY ALLIED ARE
TRANSPORTATION FACILITIES:
BUS TERMINALS
PARKING FACILITIES
BRIDGES
HIGHWAYS
PIERS
SERVICE STATIONS
RAILROAD STATIONS
AIRPORT BUILDINGS
TICKET OFFICES

EDUCATION pages 63-72



GRADE SCHOOLS
HIGH SCHOOLS
TRADE AND TECHNICAL
SCHOOLS
SPECIALIZED SCHOOLS
OF ALL SORTS

ADULT EDUCATIONAL
AND CULTURAL CENTERS
LECTURE HALLS
AUDITORIUMS
NEW LIBRARIES
ADDITIONS TO LIBRARIES

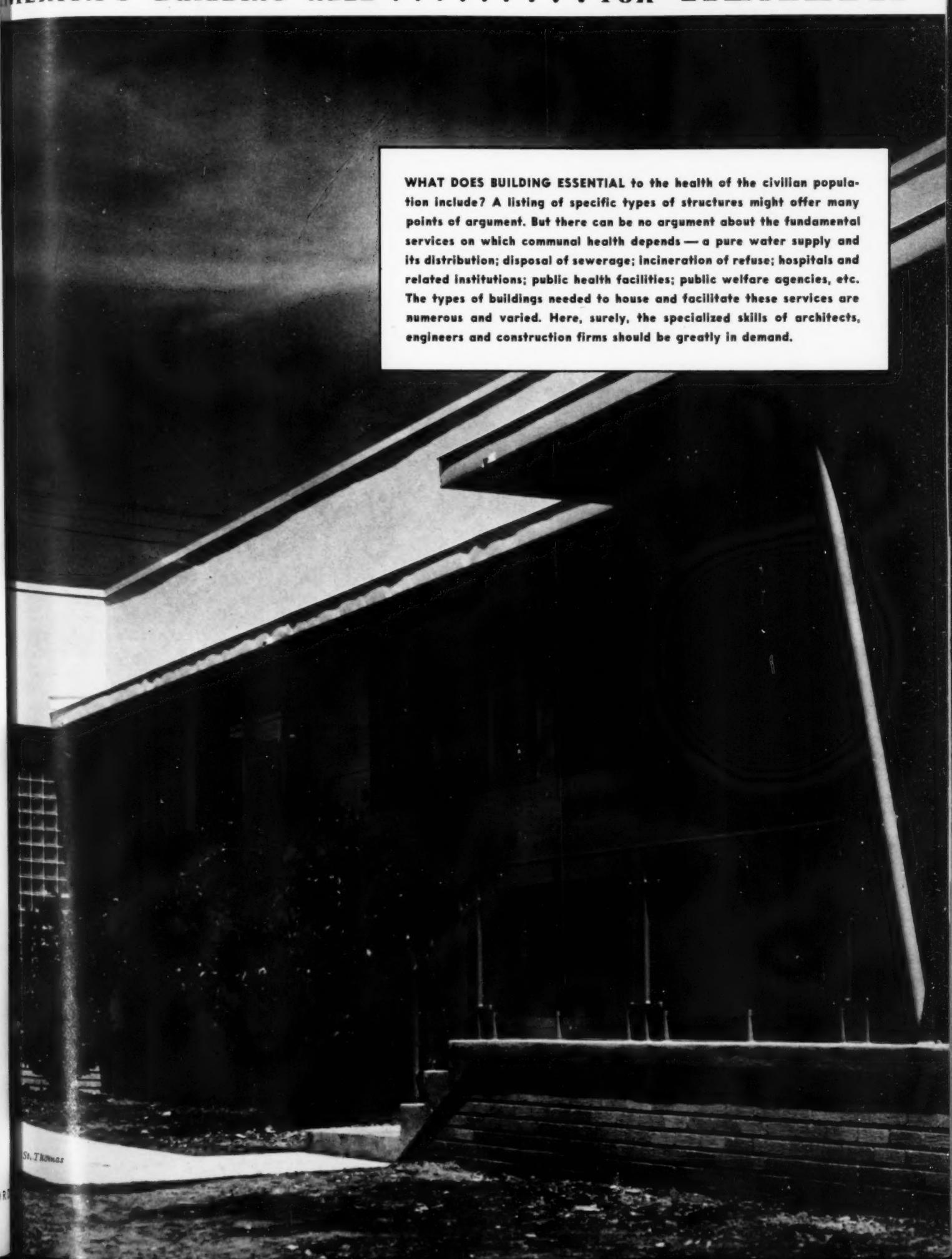
RECREATION pages 73-80



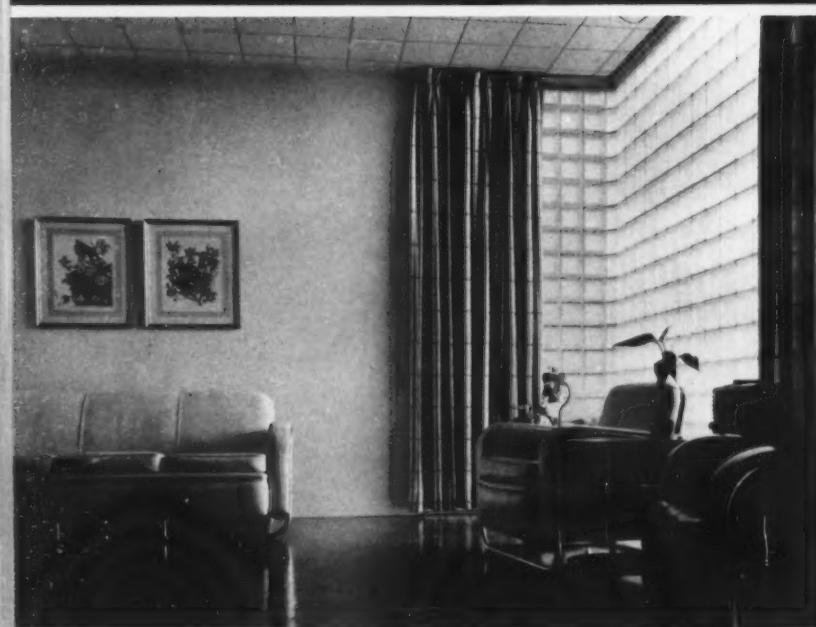
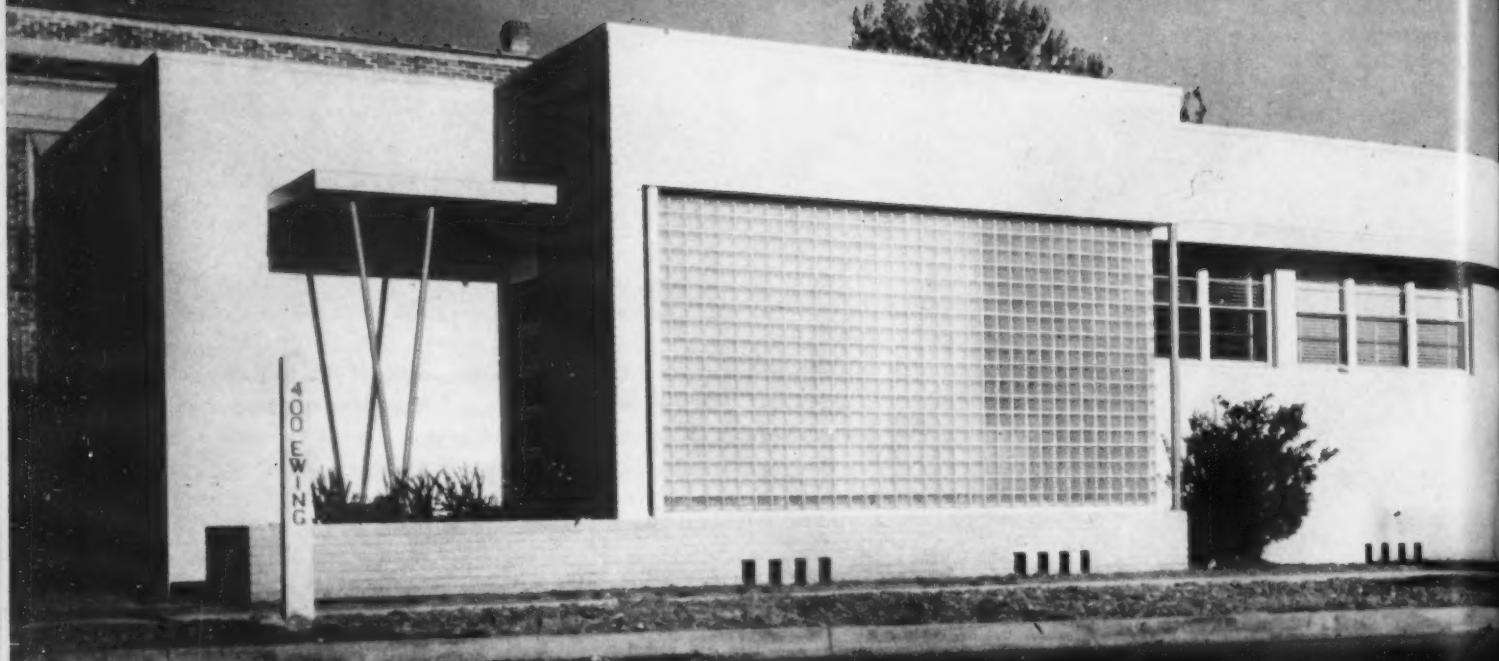
CIVIC AUDITORIUMS
GYMNASIUMS
PLAYGROUNDS
BAND SHELLS
SWIMMING POOLS
SPORTS BUILDINGS,
PUBLIC AND PRIVATE

SPORTS ARENAS
THEATERS
OUTDOOR THEATERS
CLUBHOUSES
COMMUNITY CENTERS
SKATING RINKS
PARKS AND REQUIRED STRUCTURES

AMERICA'S BUILDING NEED FOR HEALTH



WHAT DOES BUILDING ESSENTIAL to the health of the civilian population include? A listing of specific types of structures might offer many points of argument. But there can be no argument about the fundamental services on which communal health depends—a pure water supply and its distribution; disposal of sewerage; incineration of refuse; hospitals and related institutions; public health facilities; public welfare agencies, etc. The types of buildings needed to house and facilitate these services are numerous and varied. Here, surely, the specialized skills of architects, engineers and construction firms should be greatly in demand.



CLINIC

DOCTORS BUILDING, BEAUMONT, TEXAS. STONE & PITTS, ARCHITECTS.

This building was designed to serve three doctors—one a pediatrician, the other two in partnership specializing in surgery, gynecology and obstetrics. Hence the two waiting rooms. All three doctors share the use of a minor surgery room, metabolism room, laboratory and X-ray rooms. Major operations are performed at a hospital. The layout immediately suggests its adaptability to a variety of community health uses. High windows prevent undesired vision from the exterior. The building is year-round air conditioned. Spread footings and grade beams are of concrete. Partitions are of wood stud with waterproof stucco over tile veneer surfacing exterior walls. Built-up roofing covers an insulated roof frame and decking of wood. Floors (except in the air conditioning room where concrete is

SMALL HOSPITALS . . .

such as these will be needed
in many a vital area:



City Hospital, Cleveland, Miss. Overstreet & Town, Architects.
G. C. Gardner, Builder.

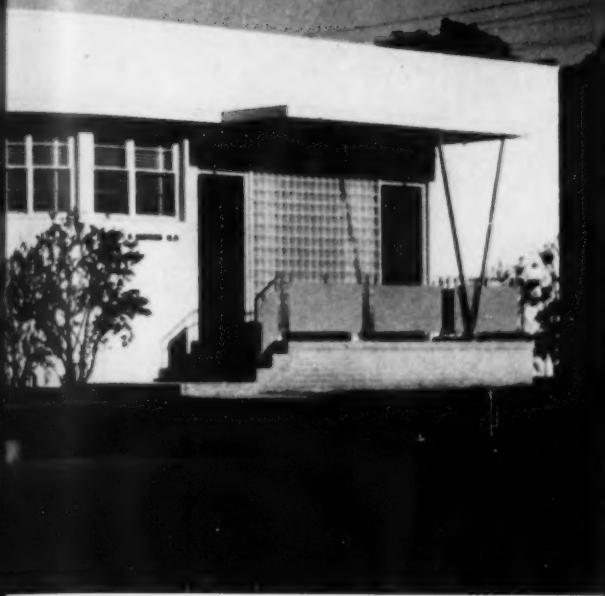


Lake Shore Hospital, Lake City, Fla. Ray Littlefield, Architect. Built by WPA. Cost \$194,000
\$40,000

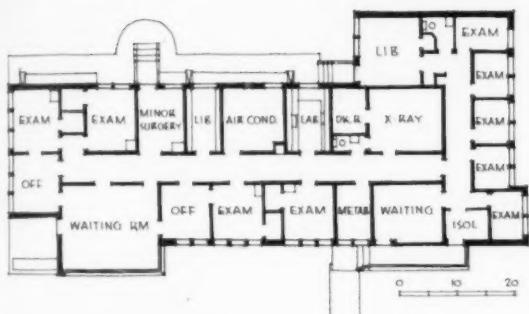


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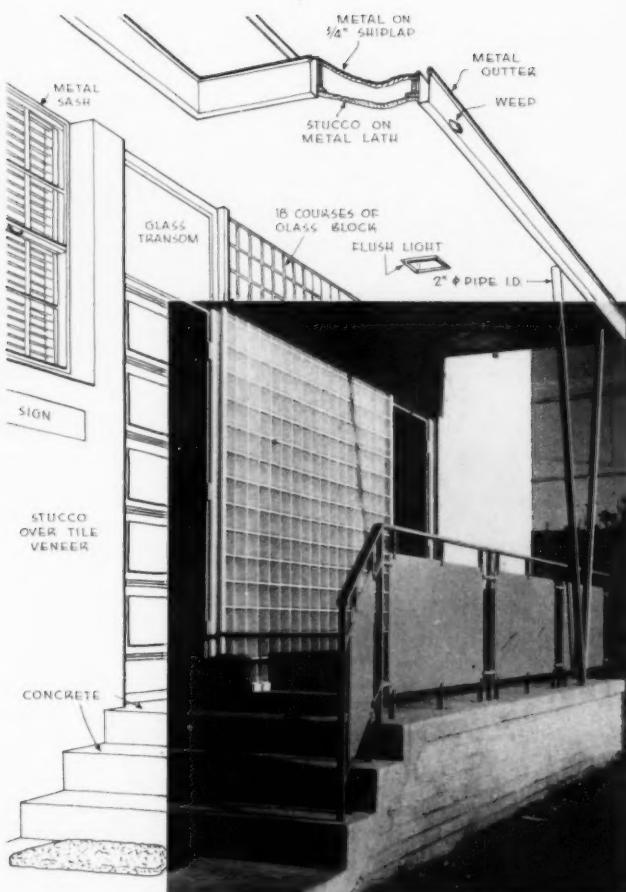
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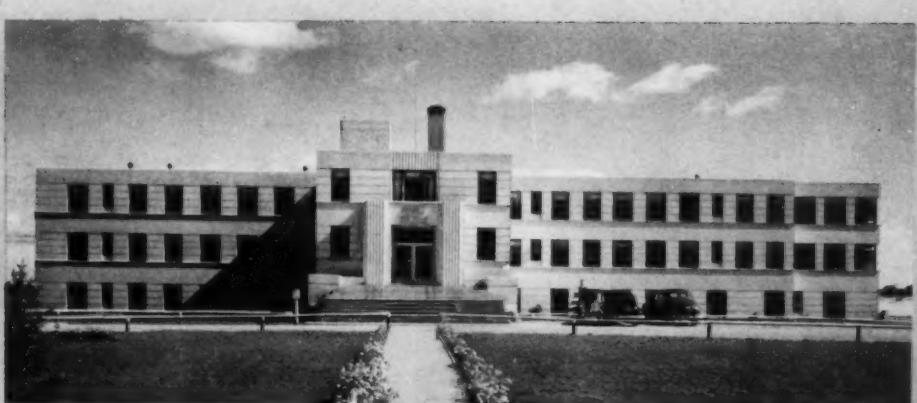
used) are finished in linoleum, laid over plywood panels that are nailed to a shiplap sub-floor. Building cost: 45 cents a cu. ft., including air conditioning, light fixtures and architects' fees, but excluding furniture and X-ray equipment. The building contractor was G. Sargl.



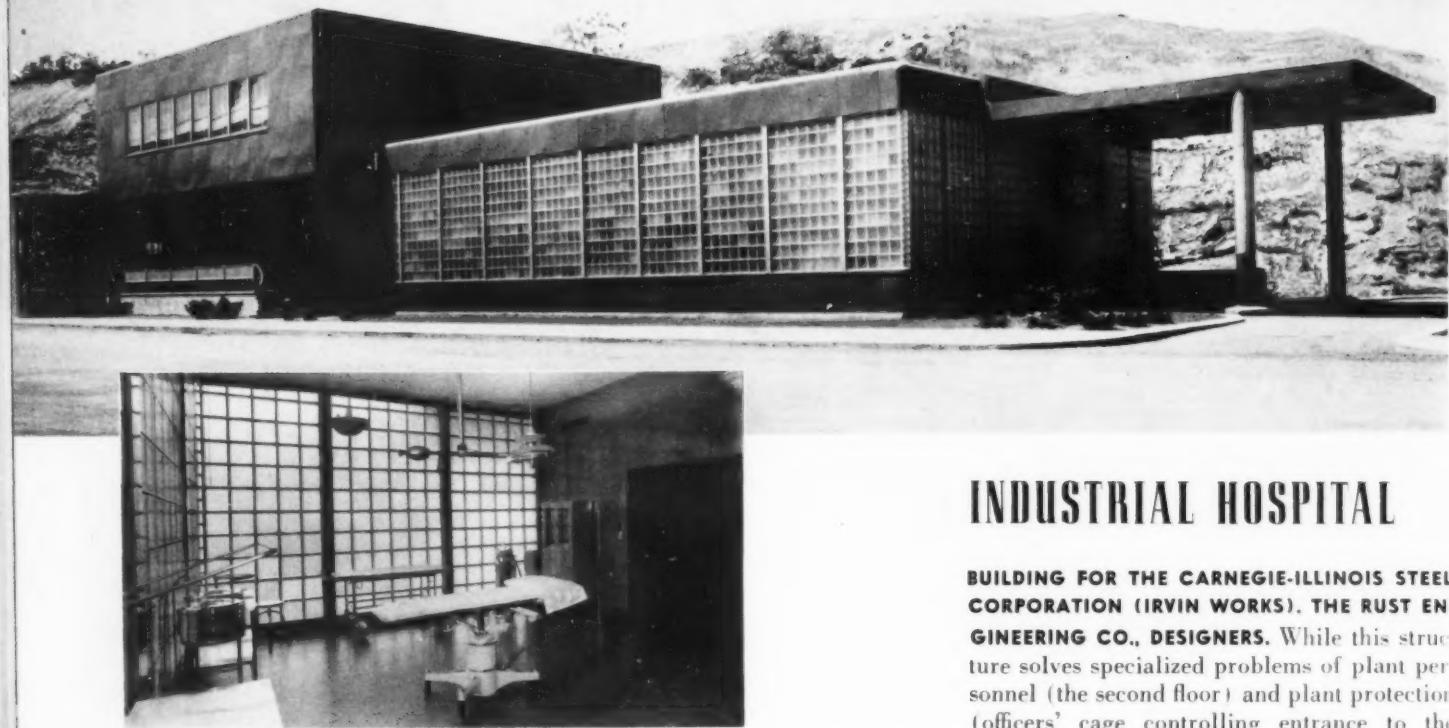
Photos by St. Thomas



Rosedale Hospital, Rosedale, Miss. Overstreet & Town, Architects. G. C. Gardner and W. M. Priestly, Contractors. Cost (WPA 1936-37): \$18,000



General Hospital, Alpena, Mich. Joseph C. Goddeyne, Architect. Owens-Ames-Kimball Co., Contractors. Cost (1939): \$139,000

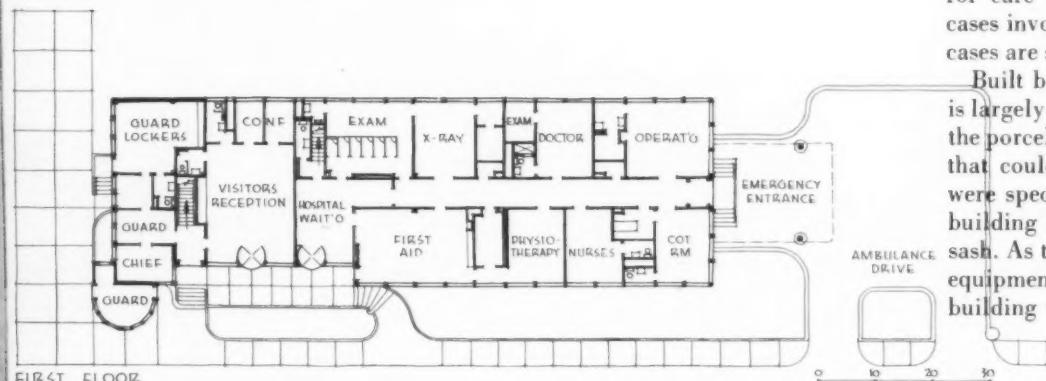
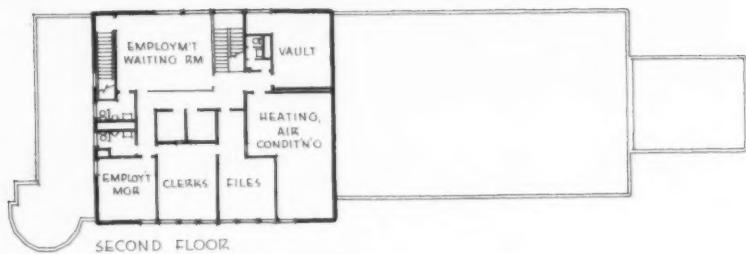


Photos by Rembrandt Studios

INDUSTRIAL HOSPITAL

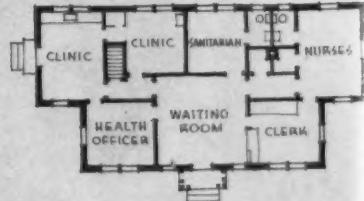
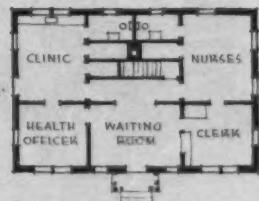
BUILDING FOR THE CARNEGIE-ILLINOIS STEEL CORPORATION (IRVIN WORKS). THE RUST ENGINEERING CO., DESIGNERS. While this structure solves specialized problems of plant personnel (the second floor) and plant protection officers' cage controlling entrance to the plant), its hospital facilities indicate possible solutions for communities requiring diagnostic centers or hospital services to supplement those of the local hospital. From the second floor, successful job applicants come for physical examinations by way of a rear stair to the hospital waiting room. Hospital facilities include emergency and treatment—operating, X-ray, first aid and physiotherapy. One doctor and two nurses are required. The cot room provides for care immediately after operation or for cases involving only a brief rest period. Other cases are sent to a Pittsburgh hospital.

Built before the day of priorities, structure is largely of pressed steel, but the patterning of the porcelain enamel facing suggests wood uses that could well be adapted. The glass block were specially designed for hospital use. The building is wholly air conditioned, with fixed sash. As there is no basement, air conditioning equipment is located on the second floor. The building was erected by the B. L. Wimmer Co.



HEALTH CENTERS

THOMAS W. GARDNER, ARCHITECT



TENNESSEE. Promoted by the Tennessee Department of Public Health, full-time health services are now established in nearly 60 counties. Permanent health

center buildings have been built in six of the counties. Three of these were constructed by the Commonwealth Fund and were presented to the counties; three

were provided from local sources. The plans indicate types of planning data which the Department distributes to the various health units as a working basis.

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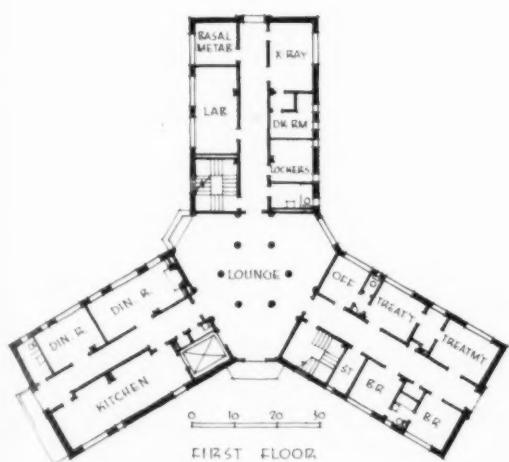
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Margaret DeM. Brown



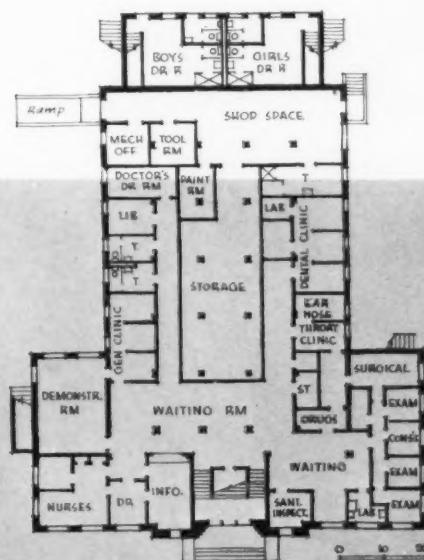
INFIRMARY

BALDWIN HOUSE, VASSAR COLLEGE, POUGHKEEPSIE, N. Y. FAULKNER & KINGSBURY, ARCHITECTS. Specifically this building is planned as the infirmary of a women's college; but its general scheme could easily apply to a new unit of a large hospital or a separate community health building. Shape of the building simplifies control of each floor and provides maximum of sunlight and air. Second and third floor plans are similar except that the north wing of the third floor is used for nurses. The building is equipped for usual infirmary care and has modern hospital equipment to handle accidents, emergencies and dietary work. Major operations go to a hospital in the city. Economy considerations determined the use of wall bearing construction, with steel bar joists for floor framing. Interior columns are of fireproofed steel. Contractor for the infirmary was Edgar V. Anderson.



KENTUCKY. The health center shown here occupies the ground floor of the community center building for Beecher Terrace, a Louisville housing project for

Negroes. One of two such housing-project centers in Louisville where a complete preventive service is furnished, it caters to the residents of the project who



cannot afford to employ their own physicians and to those who are similarly situated in the surrounding community. The space is rented by the Louisville Department of Public Health from the Housing Administration.

Photos by Cushing-Cellatty

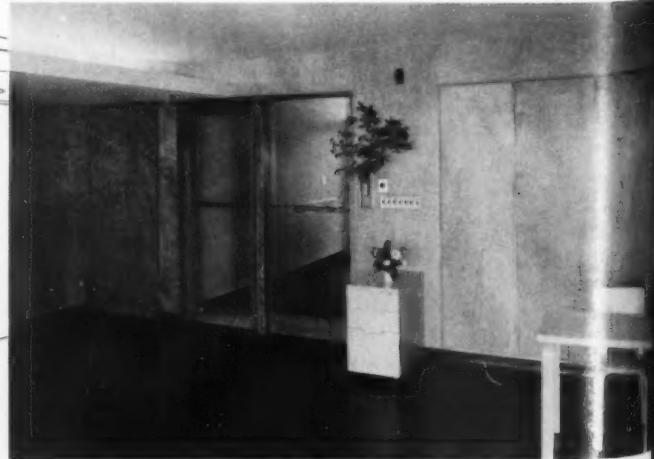
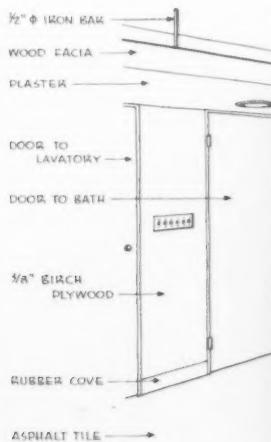


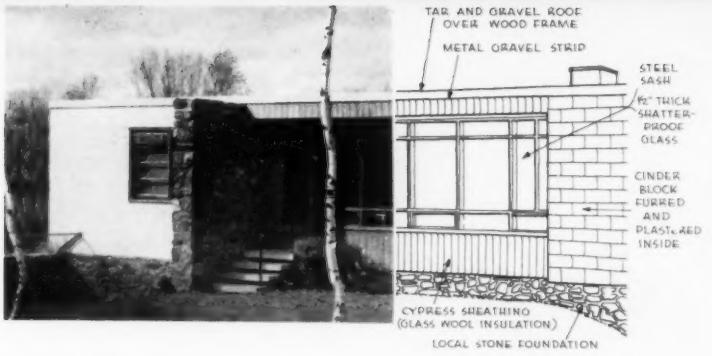
TREATMENT BUILDING

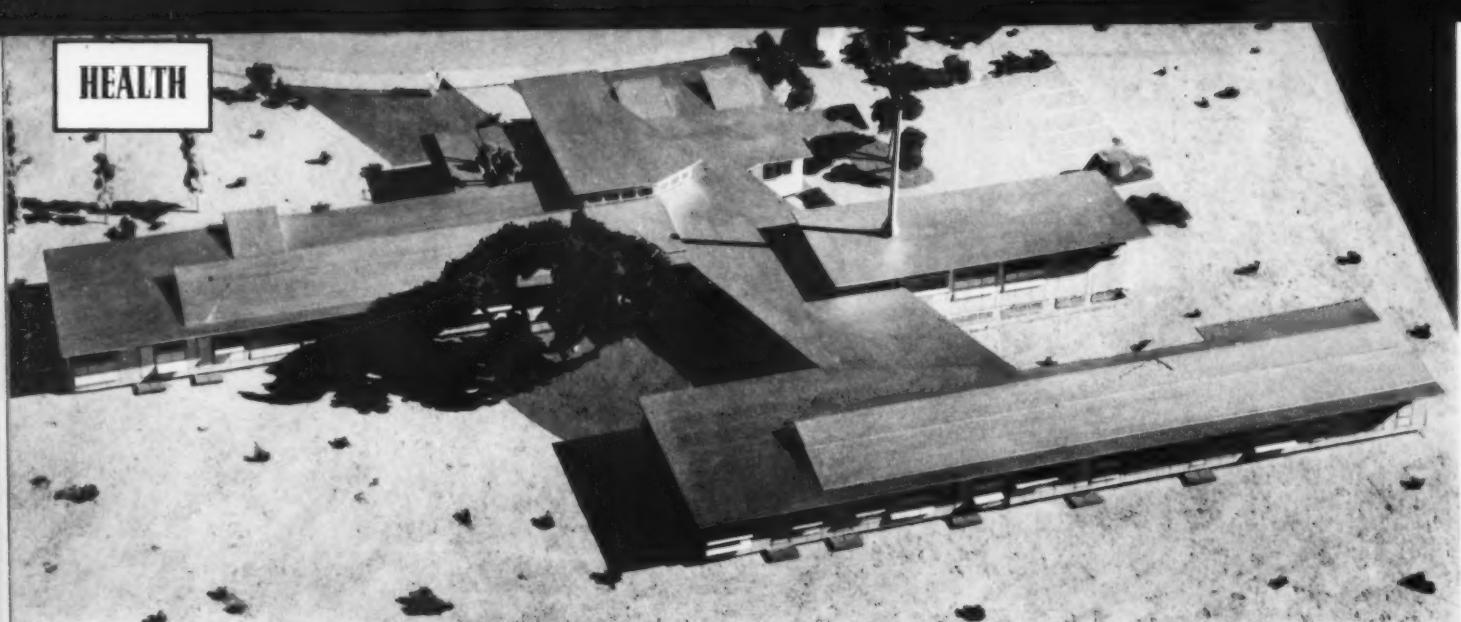
BALDPATE INC., SANITARIUM, GEORGETOWN, MASS. SAMUEL GLASER and L. L. RADO, ARCHITECTS. This forthright little structure is the first of a series of treatment buildings for disturbed patients that will be built on wooded property adjoining the main hospital. As the building is essentially a home, restrictive devices have been visually minimized; the homelike elements emphasized. Compactness and economy are the keynotes of the plan and structure. There are no interior changes in level.

From the attendant's desk in the cheerful main living room, all activities can be readily controlled. The room is finished in birch plywood and has an asphalt tile floor. Patients' clothes wardrobes are built into the wall behind the control desk. Unnecessary projections and mouldings are eliminated. A solid band of windows and a glazed door overlook the walled and fenced terrace and lawn. The use of solid stone masonry piers and projecting walls gives a psychological sense of security, yet obviates the institutional feeling. The sleeping rooms — to be used either privately or as wards — have double doors to the living room and other doors leading to the separated bath and toilet rooms. An isolation room is provided for violent patients, and a kitchen and laboratory complete the plan. A boiler room and storage room occupy the partial basement.

Exterior walls are of cinder concrete block. Interior walls are double walls of three-in. cinder concrete units with one in. between for soundproofing. Floor is of precast concrete bar joists on three-in. concrete slab. The general contractor was August Johnson Associates Inc.

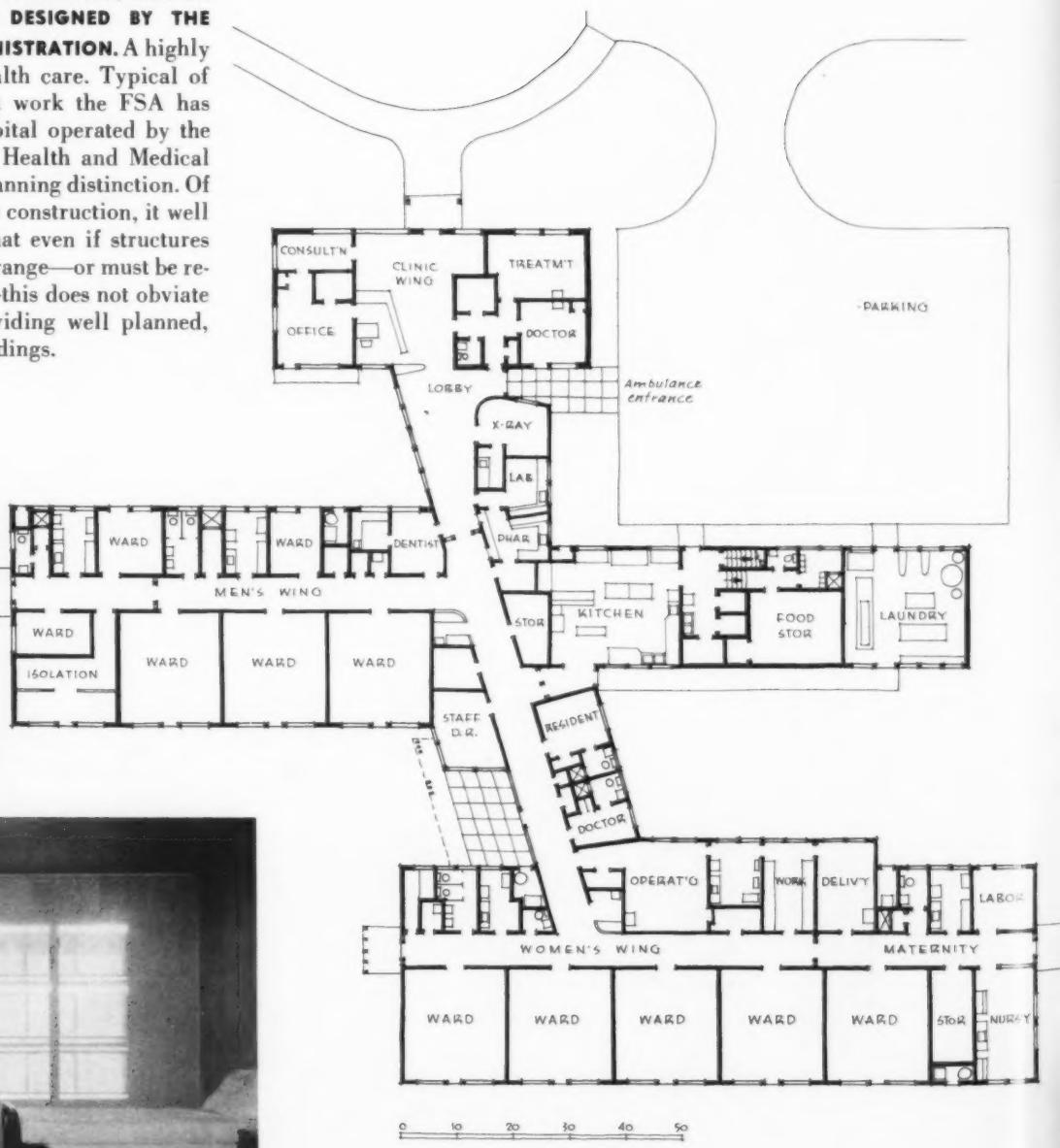
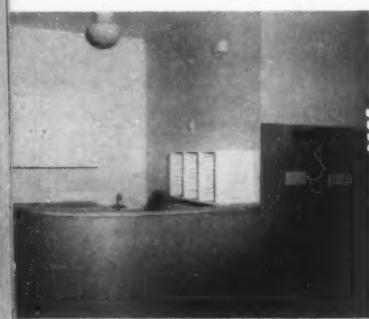




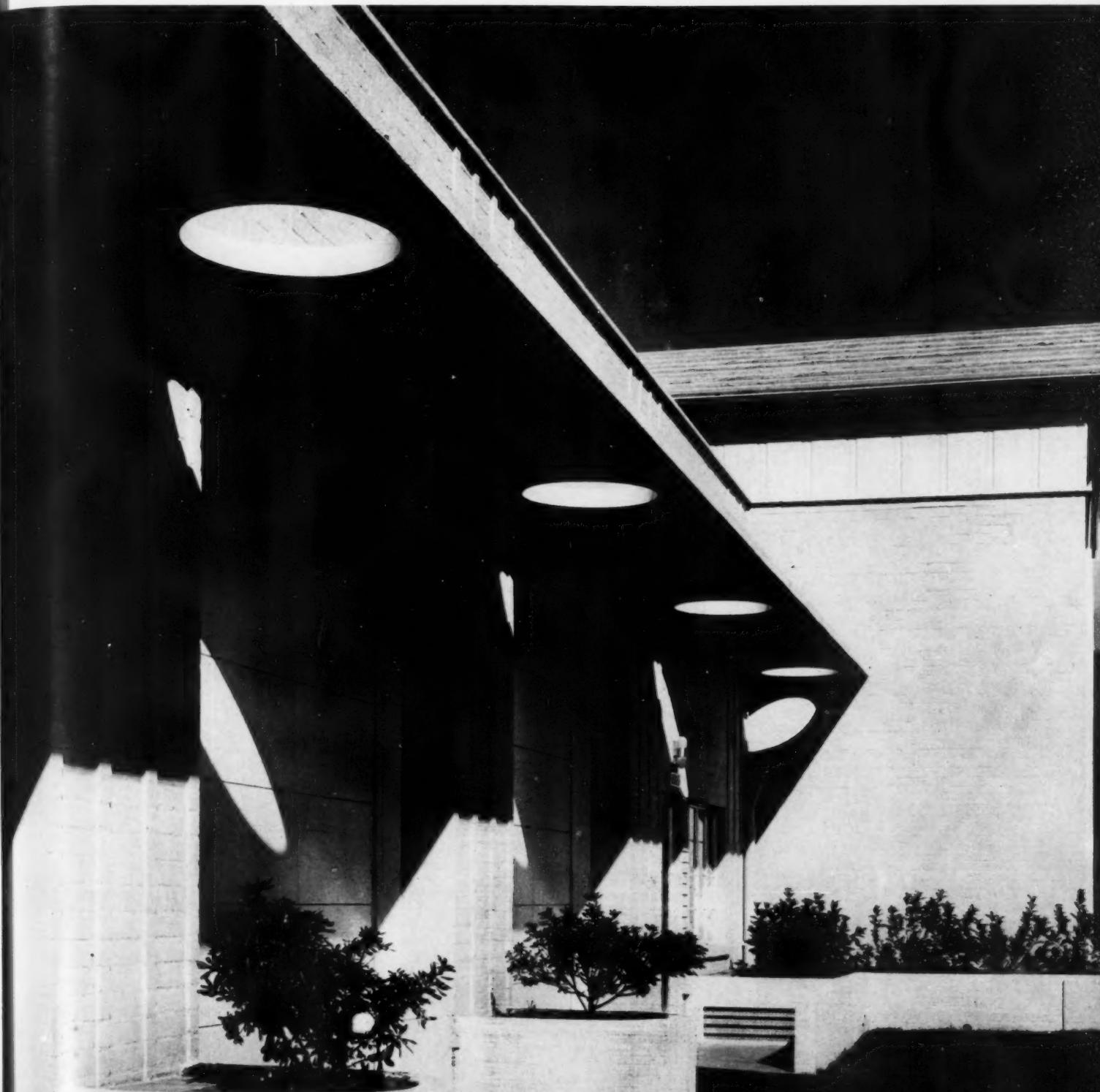


HOSPITAL

CAIRNS CONVALESCENT CENTER, ELEVEN MILE CORNER, ARIZ. DESIGNED BY THE FARM SECURITY ADMINISTRATION. A highly efficient center for health care. Typical of much of the excellent work the FSA has done, this 60-bed hospital operated by the Agricultural Workers Health and Medical Association has real planning distinction. Of simple, stuccoed frame construction, it well illustrates the point that even if structures are in the lowest price range—or must be regarded as temporary—this does not obviate the possibility of providing well planned, functional service buildings.



MERICA'S BUILDING NEED FOR SAFETY

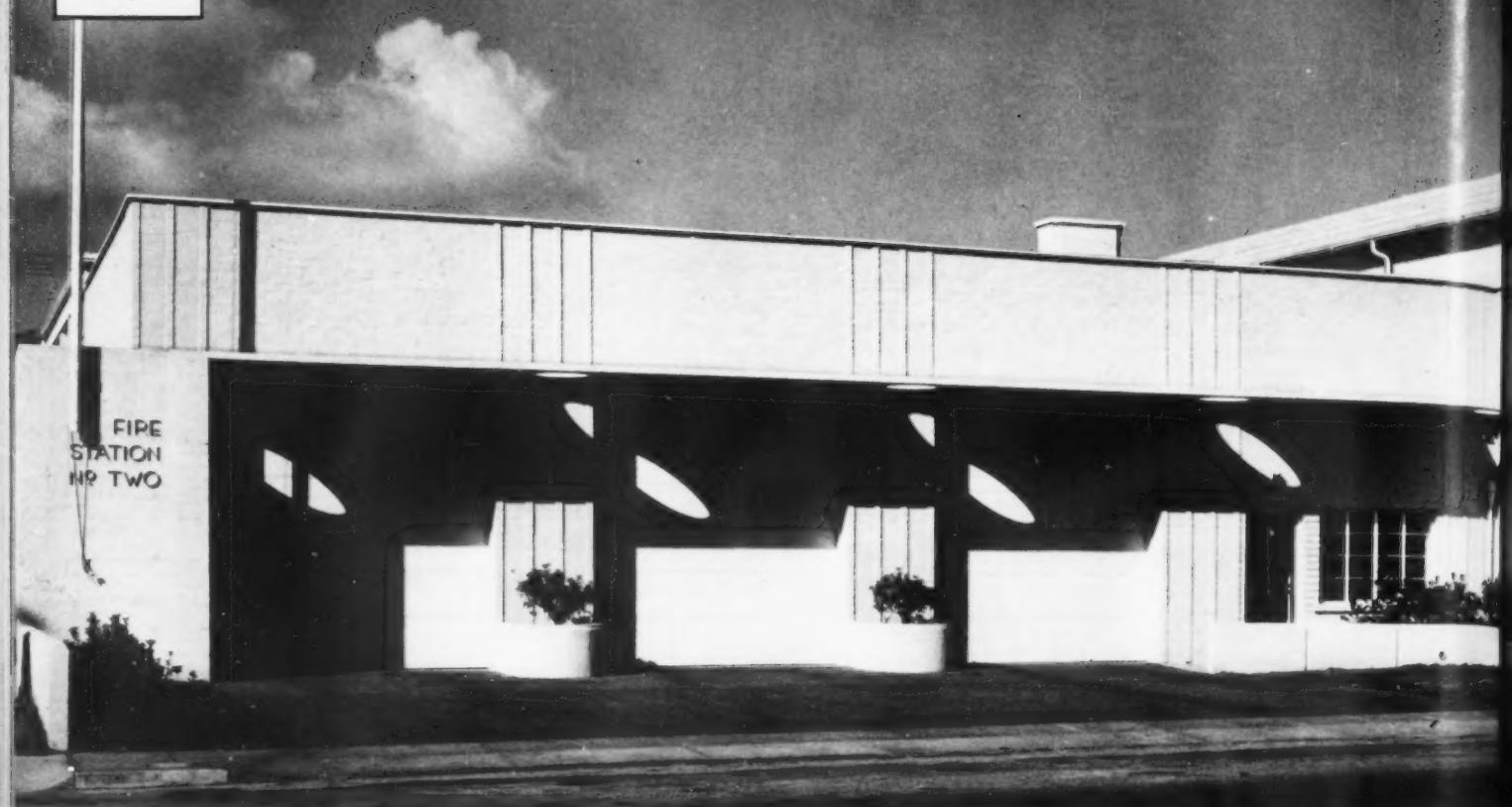


ON WHAT DOES CIVILIAN SAFETY depend? Basic, of course, are proper police and fire departments with attendant facilities, departments of correction and municipal courts. To fortify these services and make them efficient, good transportation and communication facilities are also essential. Closely allied are adequate light and power. In time of war, air raid shelters and evacuation centers become vital. In defense areas—as elsewhere—a wide variety of types of buildings is required to serve these needs. Here again, the building designer and the construction industry may expect to make important contributions to defense.

George D. Haight



RECORD



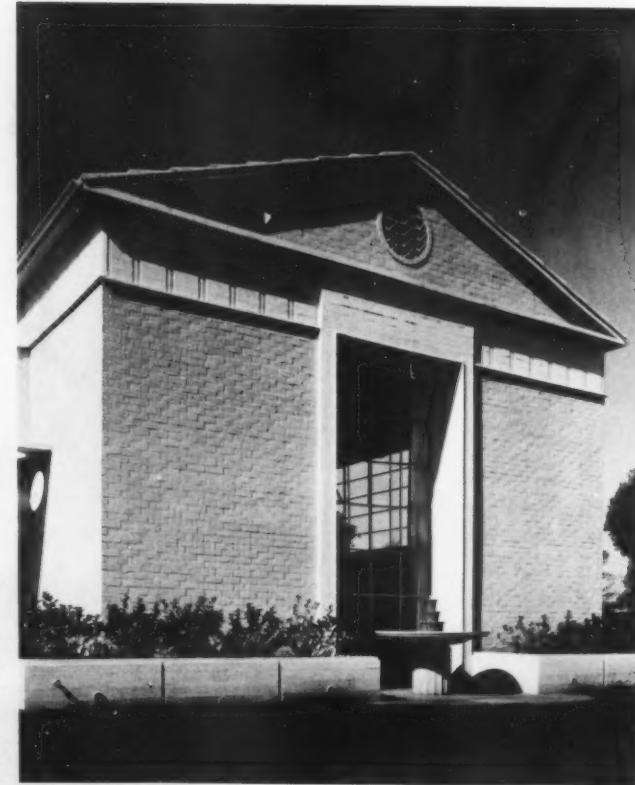
LIBRARY - FIRE STATION

TROPICO BRANCH LIBRARY AND FIRE STATION NO. 2, GLENDALE, CALIF. GRAHAM LATTA, ARCHITECT. Although the combination of functions is extraordinary, they operate entirely independently, and skillful use of the corner lot provides each with excellent facilities. The fire station faces a major boulevard away from the street intersection; the library is on the quiet street side. Interestingly, both building types are important for civilian welfare—the fire station guarding community safety; the library serving both educational and recreational needs.

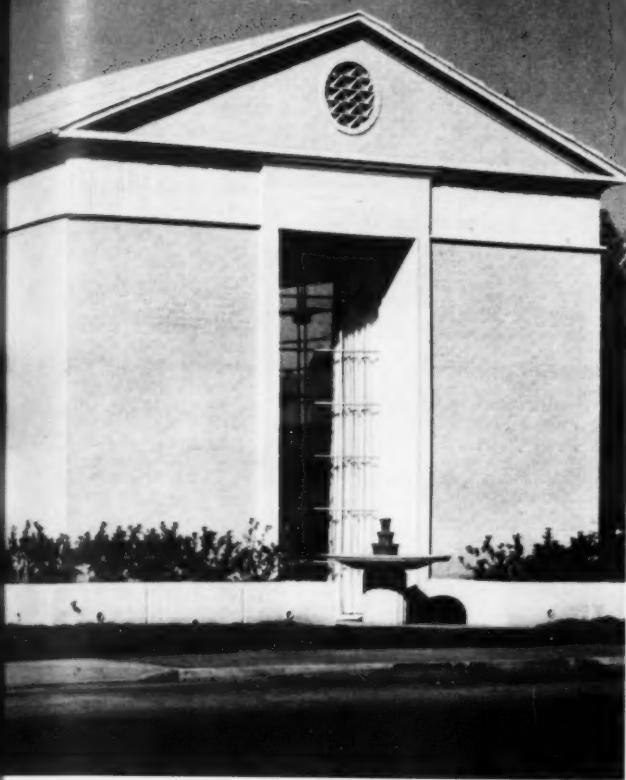
Two engines, a hook and ladder and a crew of ten men to a shift can be accommodated in the fire station. The alley entrance to the apparatus room simplifies returning after a run. In the kitchen, in addition to the usual equipment, each man has an individual, locked and ventilated food locker. In place of the usual dangerous and drafty "pole hole" for the slide pole, a "pole closet"—without a floor—is used.

The library is simply organized around the low-ceilinged vestibule and delivery desk. Location of the desk, combined with the placement of card file cases at either side, makes control absolute at this point. High windows on the street wall provide excellent north light, yet interfere not at all with normal bookcase heights.

The two-story fire station and one-story library are well integrated visually. The second story portion is placed at the rear above that part of the first story where normal ceiling heights prevail. The higher apparatus room, plus a parapet above the garage doors, effectively screens the second story from the boulevard. Structure is of reinforced brick and concrete. Willard Lutz was the general contractor.



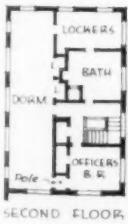
Photos by George D. Haight



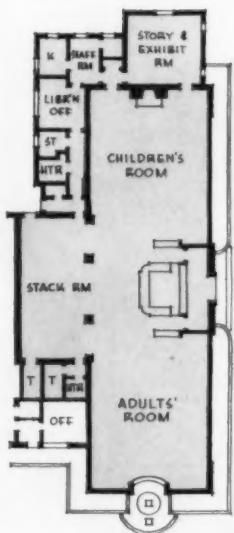
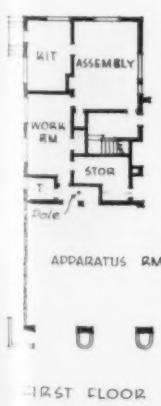
LIBRARY (See door detail below)



READING ROOM



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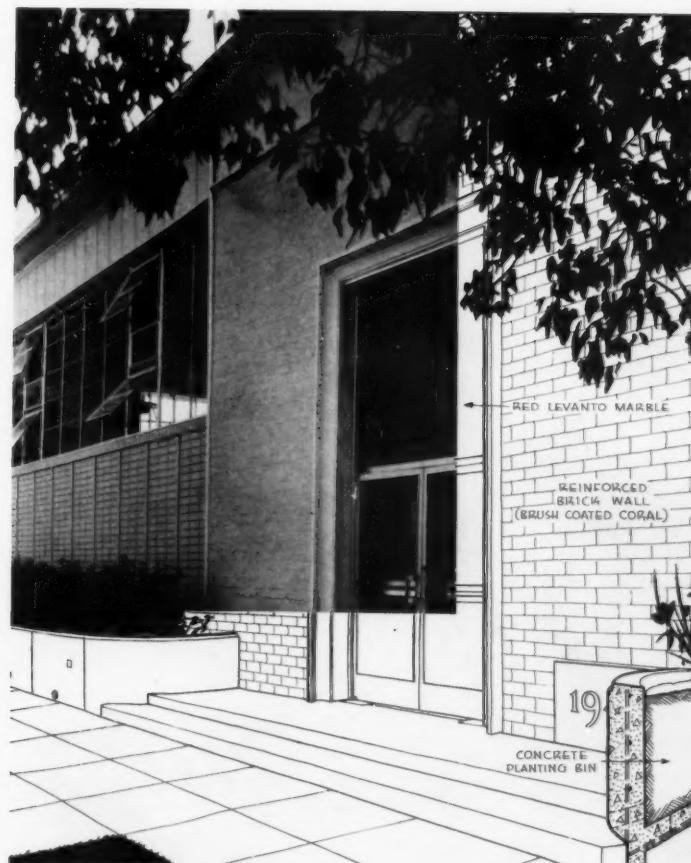
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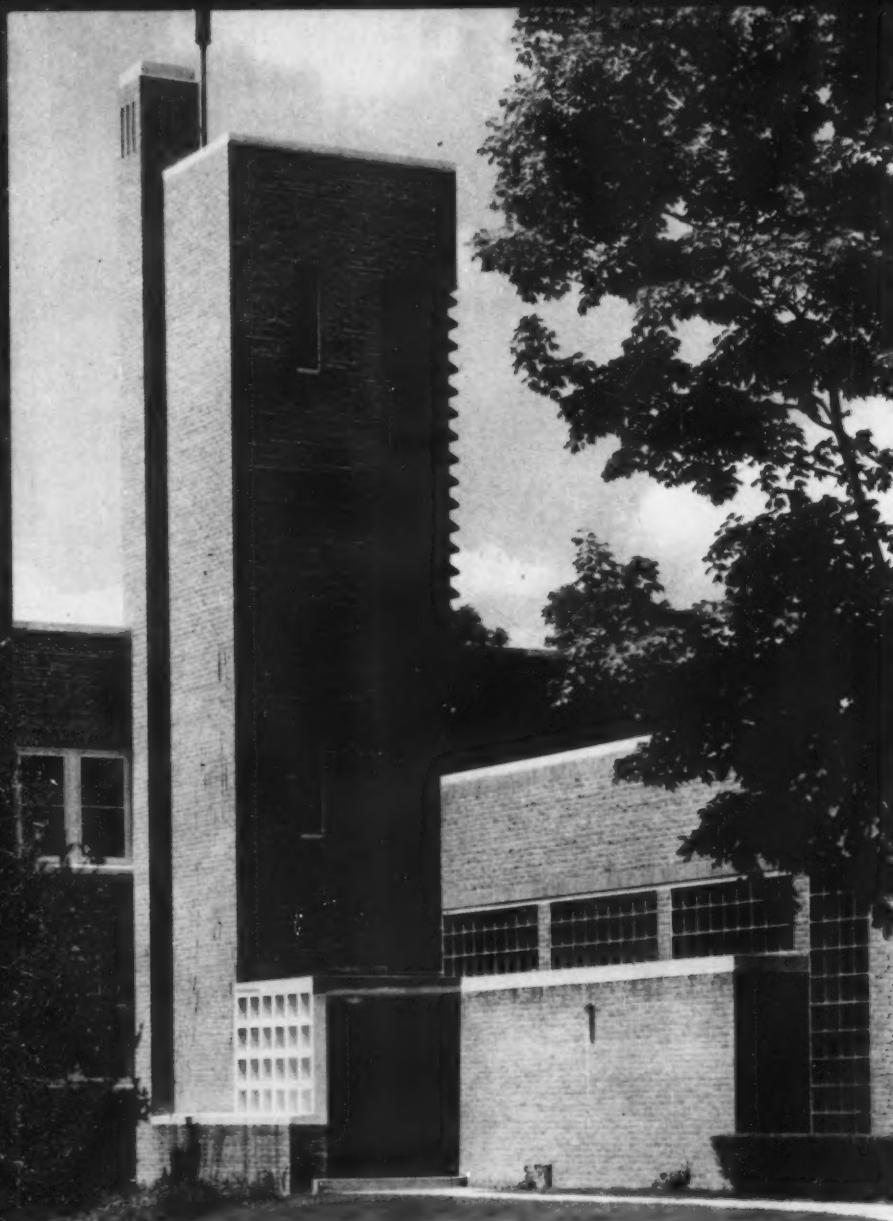
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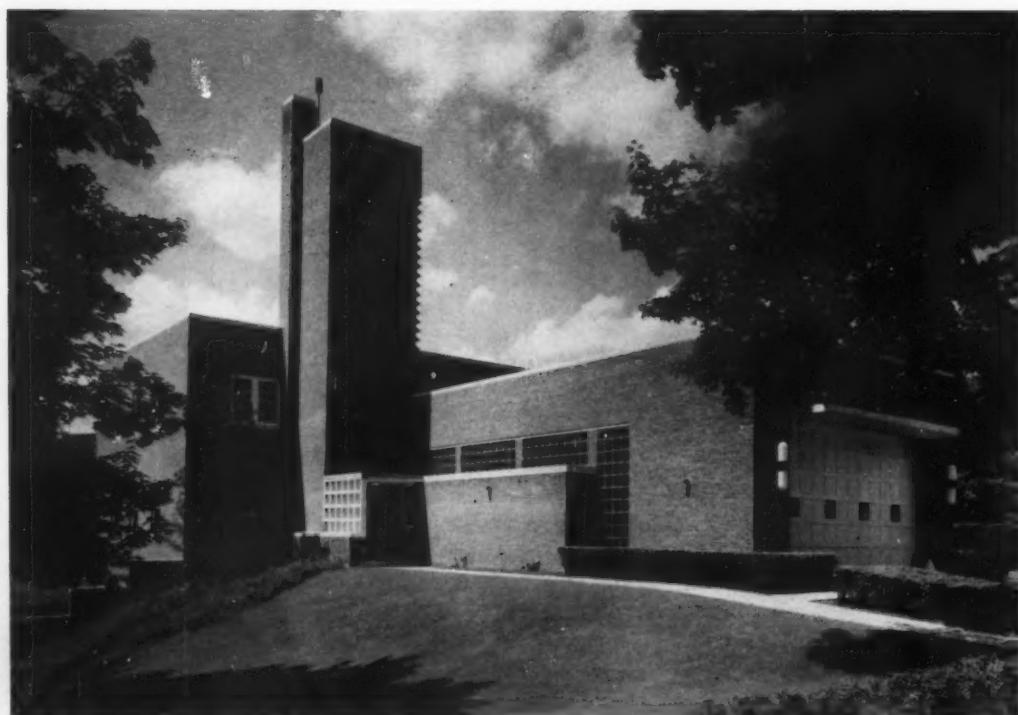
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DECEMBER 1941



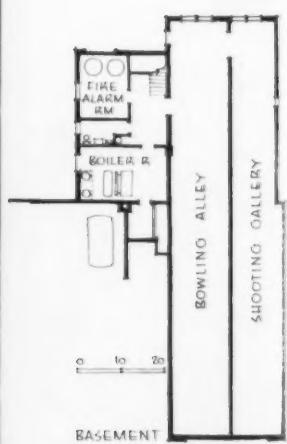


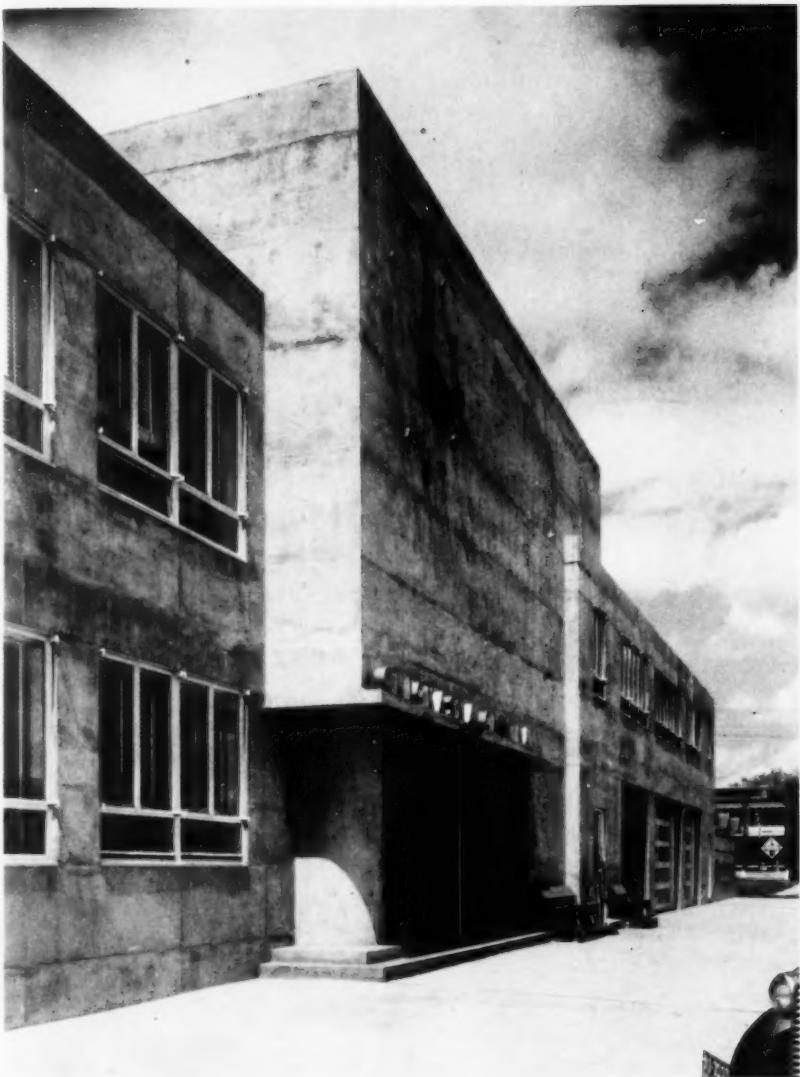
Photos by John Gazz



DISTRICT FIRE HOUSE

FIRE HOUSE FOR GREENVILLE FIRE DISTRICT, TOWN OF GREENBURGH, SCARSDALE, N. Y. SCOTT & TEEGEN, ARCHITECTS

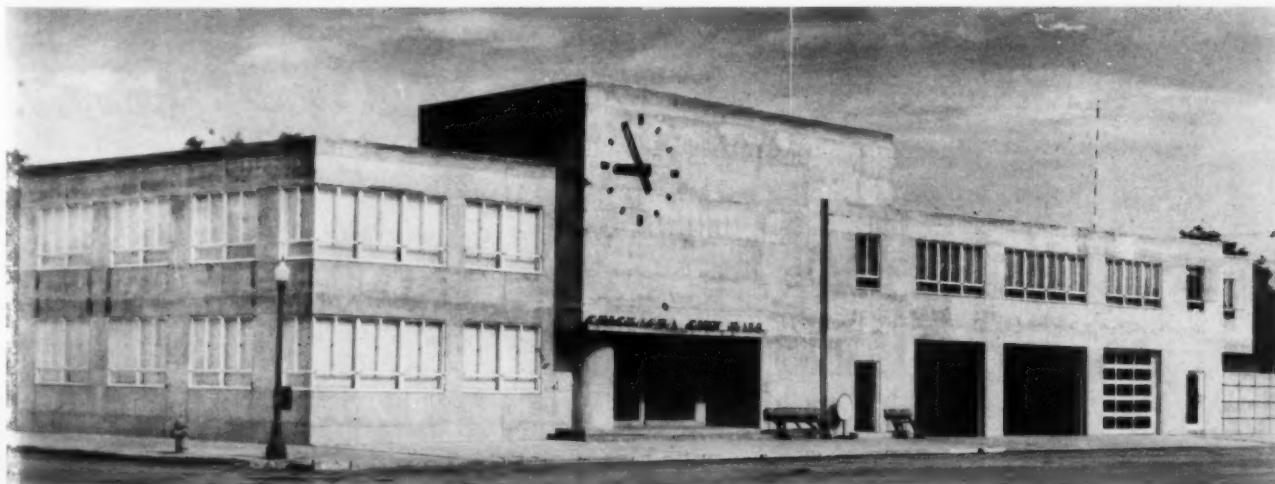
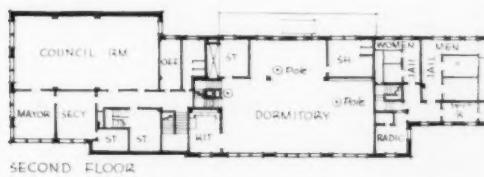
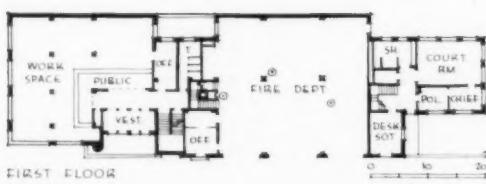




CITY HALL - FIRE STATION - POLICE STATION

CITY HALL, CHICKASHA, OKLA. PAUL HARRIS, ARCHITECT.

This new city hall (a community welfare defense need in some localities) has three functional units—a fire station (widely needed) with space for four trucks, dormitory for 12, office, kitchen and dinette; a police department (frequently needed) consisting of chief's office, sergeant's room, police court, radio room and jail quarters; and city administrative offices. The building is entirely of architectural concrete. Walls are 10-in. thick, cast against 2-in. sound absorbent material which was used as form liner. The first floor areas are surfaced in terrazzo. Where steel shortages occur, one feasible answer in certain cases may be to employ plain concrete walls of greater thickness in place of the usual reinforced construction. General contractor for the building was Chester Cowen.



Photos courtesy Portland Cement Assn.



FIRE STATION

FIRE STATION NO. 5, PEORIA, ILL. HAMILTON B. DOX, ARCHITECT. The particularly newsworthy feature of this one-story 40-by-66-ft. building is the provision for hose drying. In place of the customary tower, a tunnel-like structure slopes down along one wall of the apparatus room to an opening in the heater room on the lower level. Racks within support the wet hose lengths, while warm air is forced through the dryer. The station accommodates a crew of six. Floors are of concrete, surfaced with asphalt tile in the living quarters. Walls are of concrete block faced on the exterior with buff face brick, with precast concrete trim. Windows are steel sash and glass block. A tar and gravel roof covers a layer of insulation board and a concrete slab above steel bar joists. Cost: \$16,000. The general contractor was the George D. Johnson Co.



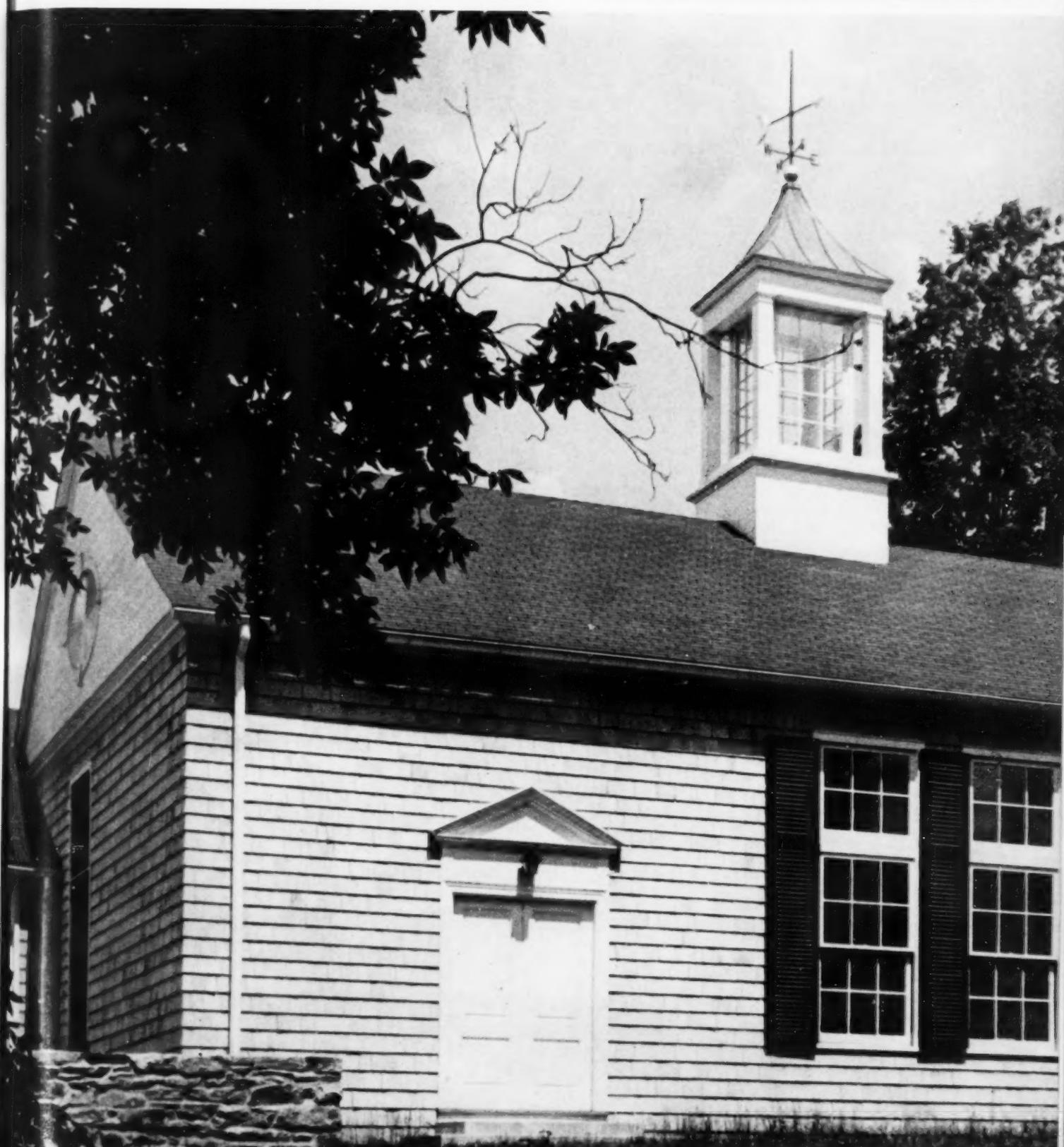
Gas Photo



FIRE STATION

FIRE STATION, RIVERDALE, NEW YORK CITY. BUREAU OF FIRE DEPARTMENT BUILDINGS. JAMES T. TRACEY, ARCHITECT

MERICA'S BUILDING NEED FOR EDUCATION



ESSENTIAL TO ANY NATIONAL PLAN that intends to maintain our basic standard of living are proper educational facilities. And judging by recently approved allocations of Federal monies for defense structural uses, the people's "health and safety" definitely includes structures to house such facilities. In this group are not only the usual public schools for children but centers for adult educational and cultural work—yet another sizable field of activity to which the entire building industry can reasonably look for work in the months ahead.

ELEMENTARY SCHOOL

CORNWALL ELEMENTARY SCHOOL, CORNWALL, CONN. ADAMS AND PRENTICE, ARCHITECTS. Replacing several small antiquated schoolhouses that were scattered over a wide area in surrounding villages, this new New England school has much to recommend it to the attention of architects, town school boards or others concerned with the planning of an efficient small school plant. It was built within a limited budget, \$54,113—20½ cents per cu. ft., excluding architects' fee; it provides for future expansion; it allows for great flexibility to accommodate changing instructional needs and (economy note) it makes generous use of local materials.

Choice of a one-story school scheme effected sizable economies, permitting non-fireproof construction and elimination of stairways. A small basement under the primary room wing contains heater room and janitor's storage room. Heater pipes are carried in trenches to the classroom wing. The main classroom wing (which can be readily extended) runs approximately parallel to the land contours. Besides the noteworthy rooms themselves (see below) this wing contains a utility-library room, janitor's closet, teachers' rooms and toilet rooms.

The air-conditioned assembly room, used by the school as an auditorium, play room, theater and dance hall, also serves the community for various town functions, lectures and dramatics. Walls of this room are surfaced in three-ft. squares of waxed Duali plywood applied to the studs with exposed brass-headed nails.

The large primary room with papered walls and fireplace has its own toilet room and an outdoor play area separated from other age groups. The well-equipped kitchen serves both as clinic and service kitchen for assembly-room gatherings.

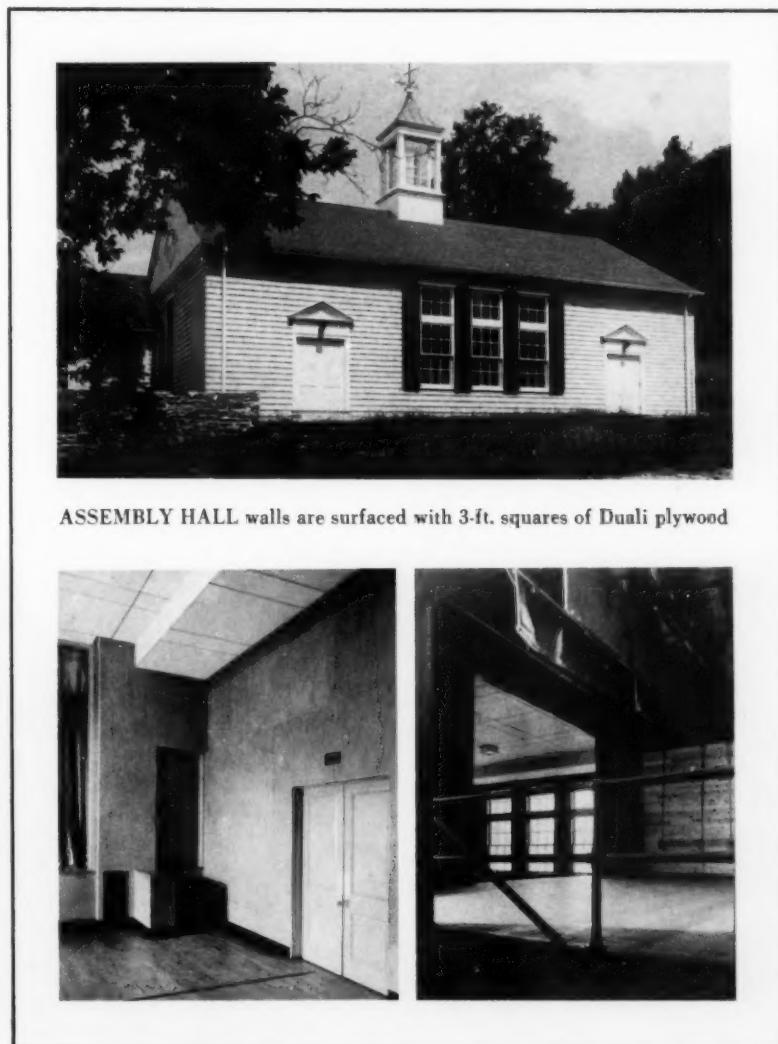
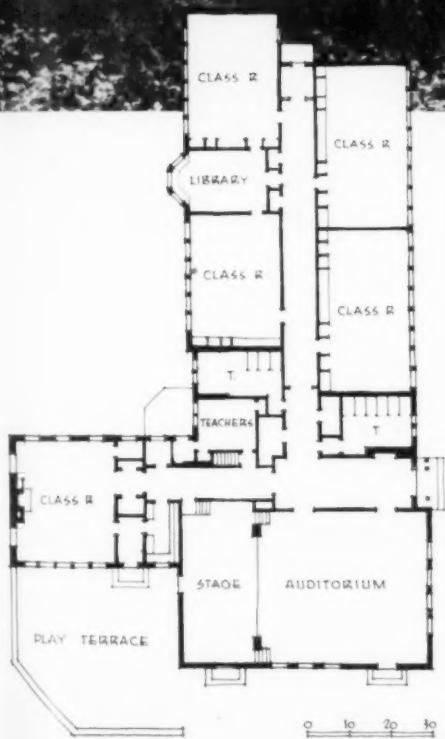
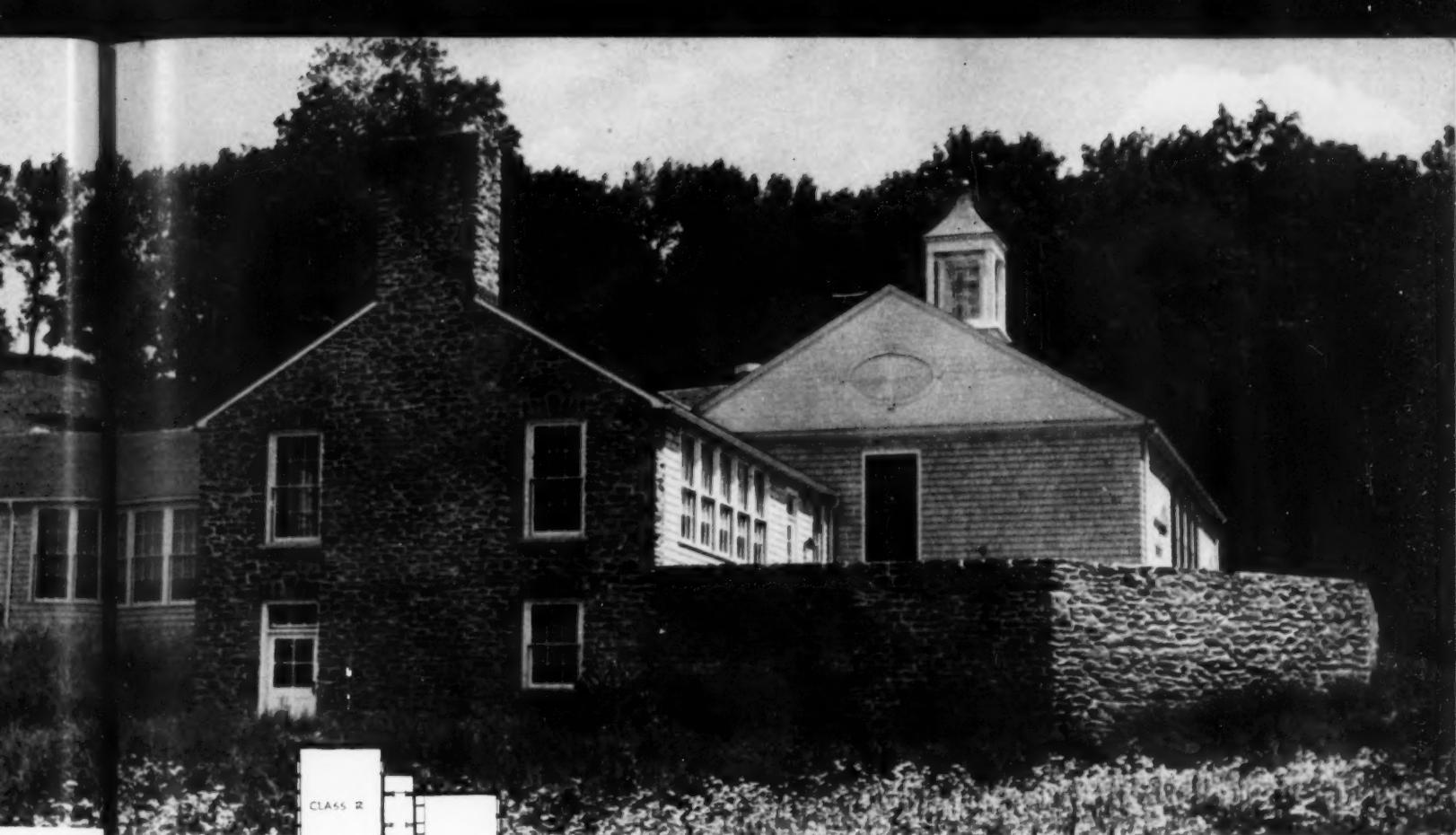
A portion of the south wing and the large terrace wall are of local stone; the balance of the exterior is surfaced in gray-stained cedar shingles. General contractors were The Carlson & Torrell Co.

CLASSROOMS. Each of the four classrooms accommodates 35 children and allows utmost flexibility of arrangement. One wall is a solid bank of windows with storage shelves and cabinets beneath. Facing this is the corridor wall which contains not only coat closets but bookshelves and compartments of varying shape and size. A work sink with adjacent cupboards and shelves occupies one end of the wall assembly. An unusual provision is the end wall of simple unpainted pine boarding. Here the children's work may be mounted, and even a little painting or nailing will do no serious damage. To facilitate partitioning of activities without interfering with basic flexibility of the room area, a curtain wire with turn buckles spans the room a distance from the pine board wall. Each classroom is painted a different color in neutral tone. Floors are of asphalt tile; ceilings (as in the assembly room) are finished in acoustical board.

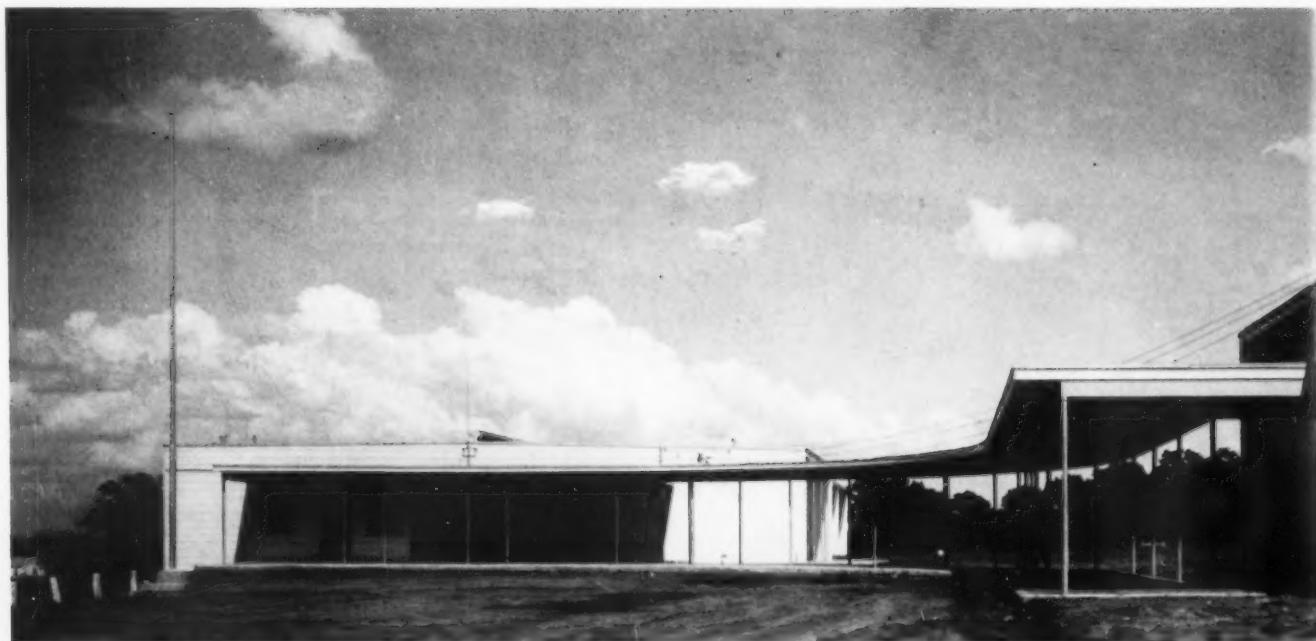


Interior photos by George H. Van Anda





ASSEMBLY HALL walls are surfaced with 3-ft. squares of Duali plywood



HIGH SCHOOL unit at left; workshop and music building at right. Four elementary classroom buildings are in an adjacent grouping

COMMUNITY SCHOOL

THE CONSOLIDATED SCHOOL, COLLEGE STATION, TEXAS. C. J. FINNEY, ERNEST LANGFORD, ARCHITECTS.

This combined elementary and high school group is a notable example of sound preplanning to care for foreseeable future as well as present needs. Population trends, school enrolment and factors of the community's financial, physical and social condition were carefully tabulated and analyzed by students of the Department of Architecture of Texas A. & M. College, which is located in the district. On the basis of these and actual proposed plans drawn up by the students, the architects worked out the finished scheme. Present buildings include a high school unit, work-shop and music building and a group of four elementary classroom structures.

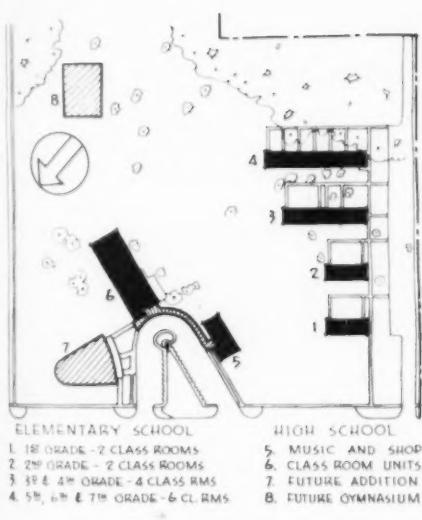
An auditorium and a gymnasium will be added as funds become available. Separate play areas are provided for the high and elementary school groups. In addition to classrooms the elementary group contains an office for the principal, and book storage room; a clinic and pupils' store. The high school unit consists of five classrooms, office for the principal and superintendent, book storage, teachers' lounge, study hall and library, science and home economics workrooms. Any of the buildings may easily be expanded without alteration to existing structure. The construction system is based on a 48-module, effecting savings of three per cent of the total cost. Interior walls are simply finished in plywood. The school was built by the Smith Building Co.

CONSOLIDATED SCHOOL



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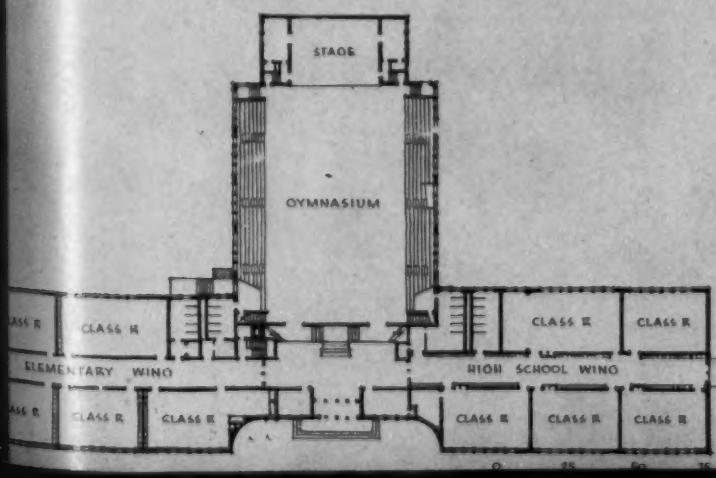
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LOUVERED OPENINGS on the west face facilitate cross ventilation



ELEMENTARY CLASSROOMS are shaded by deep reveal and overhang

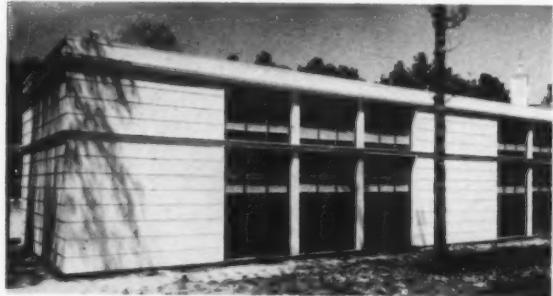


CRESCENT SCHOOL, KLAMATH COUNTY, ORE.

HOWARD R. PERRIN, ARCHITECT. Entirely of wood, this school affords both elementary and high school facilities. The elementary wing, at left of the main foyer, consists of five classrooms and an activity alcove; serving high school students are two regular classrooms, a combined classroom and library, a science room and domestic science room.

Foyer, corridors and classrooms have fir floors and plywood wainscoting with fibreboard above. The ceilings are also fibreboard.

The gymnasium-auditorium is economically planned. Locker rooms occur beneath the permanent bleachers. The gym floor is of maple. George H. Buckler Co. was the contractor.



CLASSROOM UNIT. Sliding windows open up two-thirds of one wall to outdoors

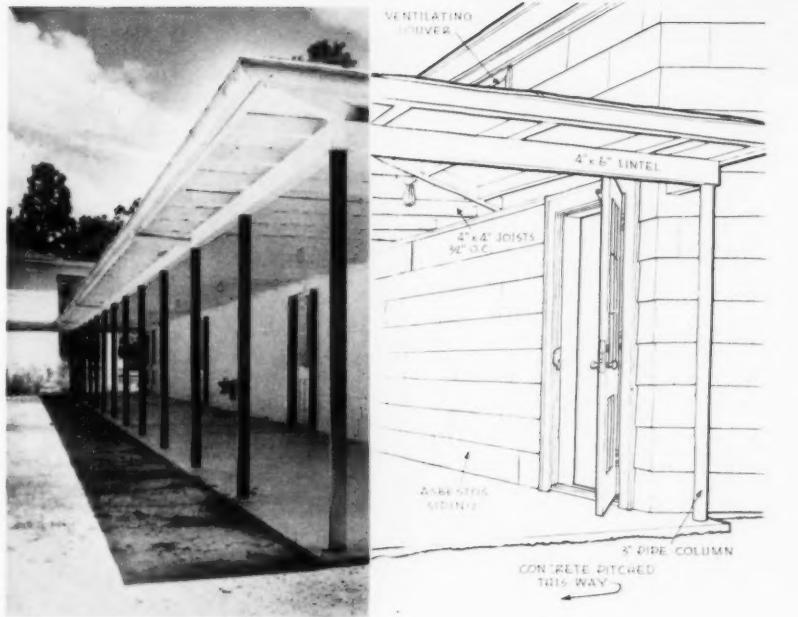


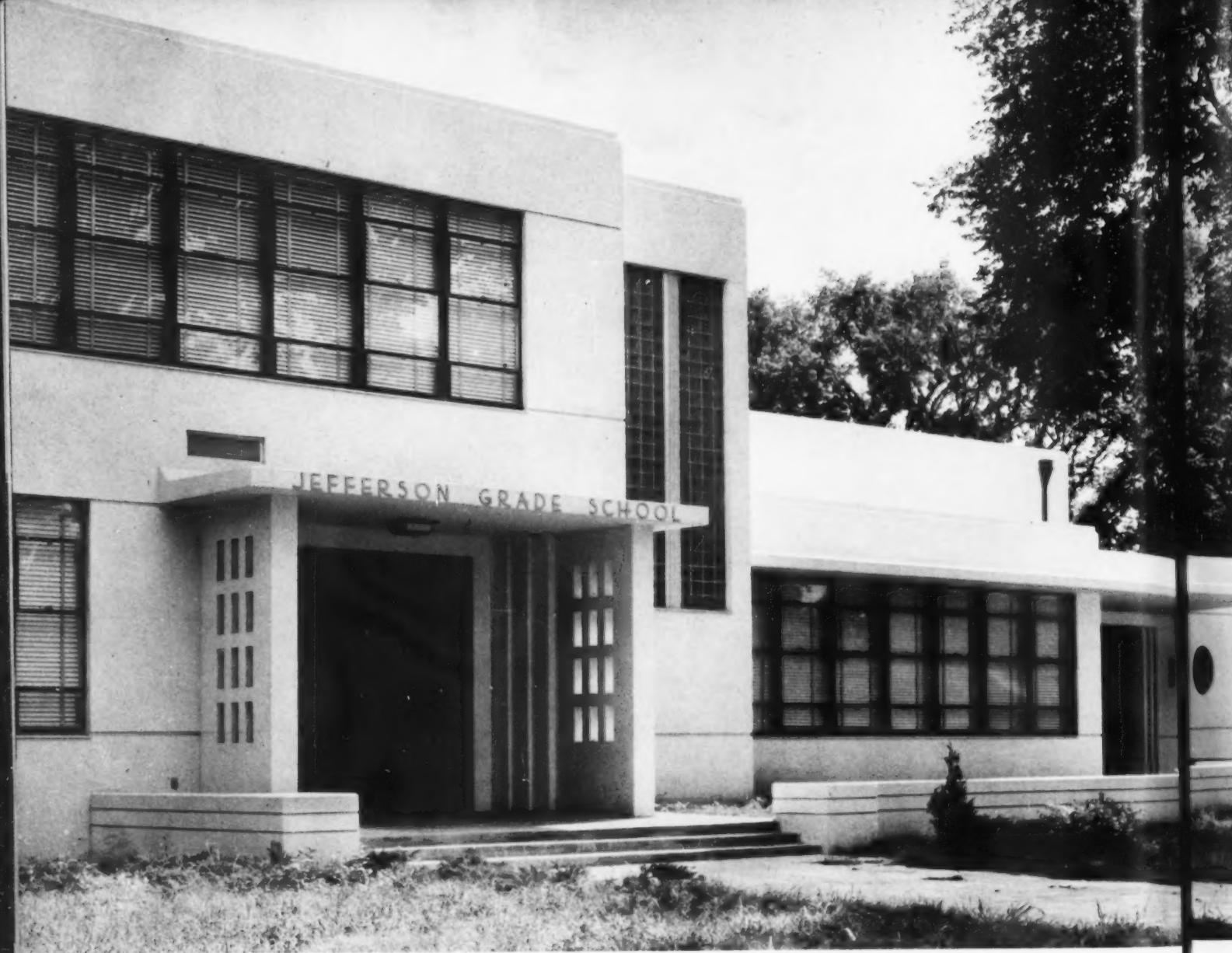
Photos by St. Thomas and Paul Peters

ELEMENTARY SCHOOL

GARDEN OAKS ELEMENTARY SCHOOL, HOUSTON, TEXAS. TALBOTT WILSON & IRWIN MORRIS, ARCHITECTS. Built on the not unusual plan of a central auditorium unit and a pair of receding wings, this new Texas school is of very special interest because of its novel classroom plan and arrangement that was worked out to solve the lighting problem. Research found that, to avoid glare, many teachers were turning pupils' desks at an angle to the windows. But this produced an equally undesirable result: students then faced the blackboard at an angle. The architects of the Garden Oaks School started with the desired relationship between light source and desk angle; then laid out the blackboard wall so that it faced the desks directly. This resulted in the parallelogram-shaped room. In addition to eliminating glare from the blackboard wall, it produced two useful corner areas—one at the rear for an "individual work" table; the other, at front, for a lavatory, heating unit and teacher's locker. It also afforded structural economy, as narrower rooms and shorter roof spans were possible. The window wall is so designed that two six-by-seven-ft. doors can be slid back into wall pockets opening up two-thirds of the wall to outdoors—a practical addition to classroom areas in mild climates. An outdoor "corridor" connecting classroom blocks and assembly hall unit eliminates much construction and permits cross ventilation.

Another newsworthy feature is the auditorium stage arrangement. The auditorium floor is at ground level and the back wall of the stage consists of large sliding doors; when these are rolled back, the stage can serve an outside audience on the lawn as well as the one inside. General contractor for the school was Carl Bradford.

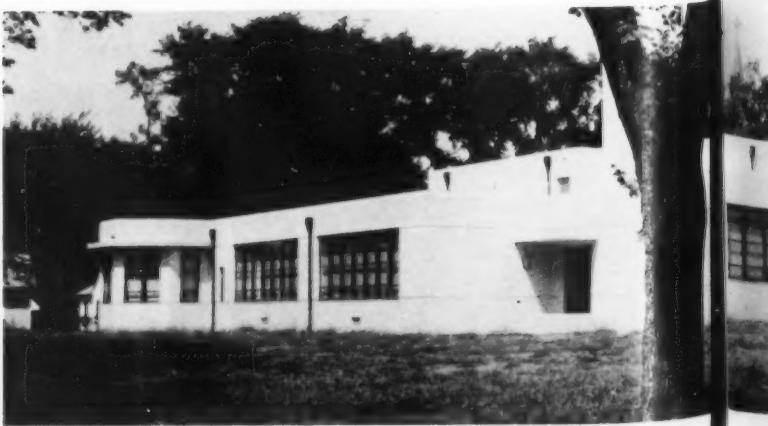




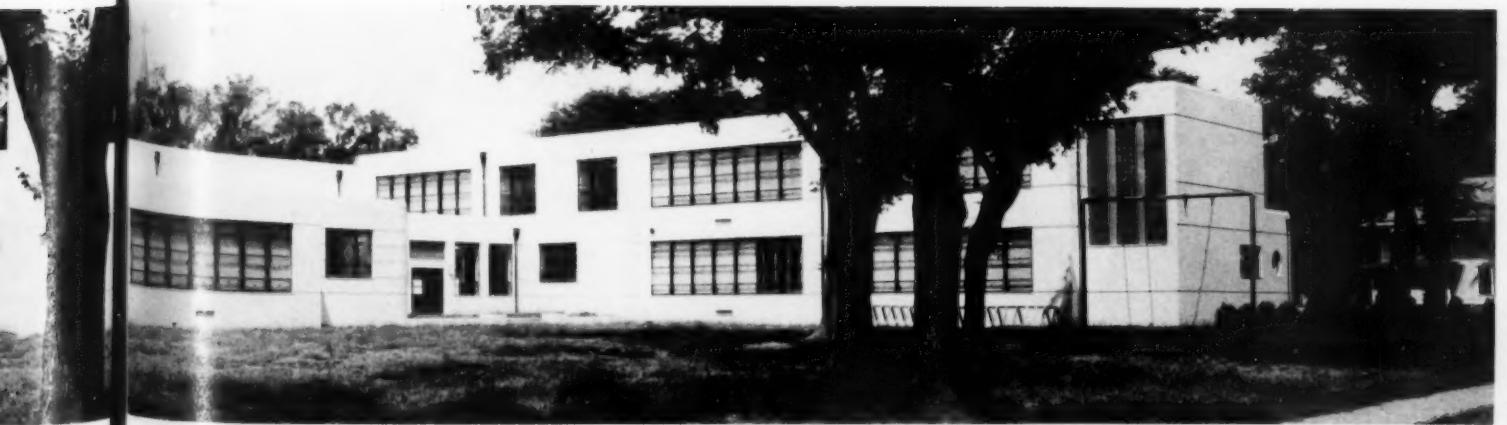
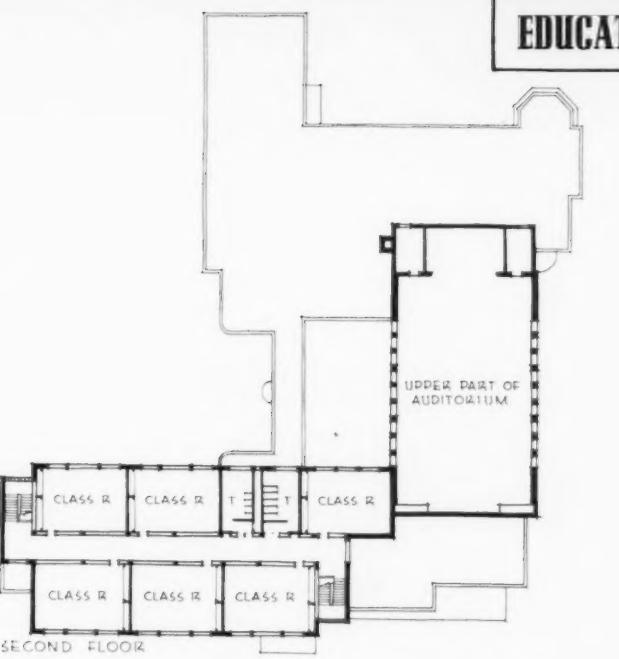
SCHOOL

JEFFERSON GRADE SCHOOL, IOLA, KANSAS.

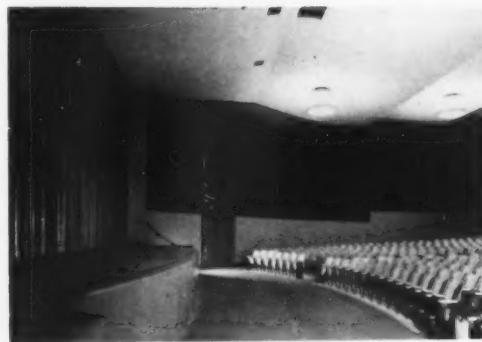
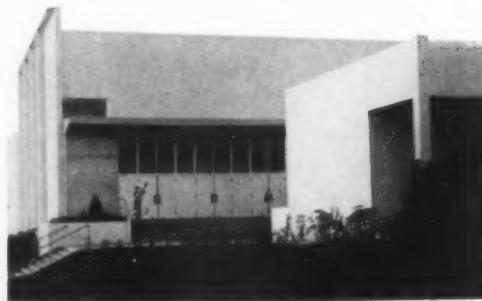
LORENTZ SCHMIDT, ARCHITECT. Maximum natural illumination with as many rooms as possible at ground level dictated the school plan. Foundations are of spot footings and heavy beams. The first floors are framed throughout, allowing unrestricted space for ductwork and piping. Otherwise of concrete, the exterior walls are 10-in. thick above the first floor line, reinforced vertically and horizontally in both wall faces. Expansion joints are provided, located mostly at inside corners where they are inconspicuous. Exterior surfaces were left as they came from the plywood forms, and were later cleaned and painted with cement paint. No interior furring was used; exterior walls of the classrooms were first given two coats of asphaltic plaster bond, then plastered. The Huff Construction Company was the general contractor.



EDUCATION



EDUCATION

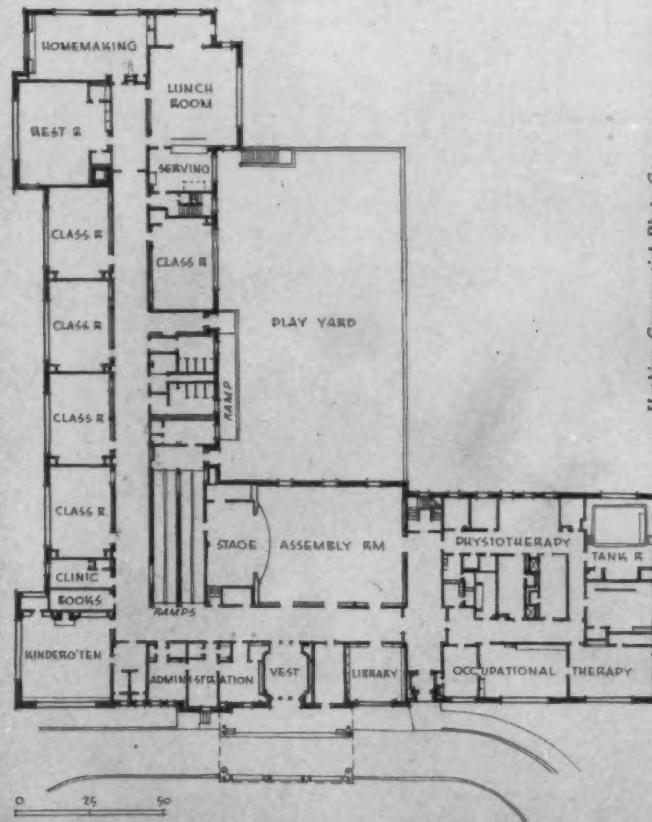


Interior photos by Julius Shulman, exterior by Luckhaus Studio

AUDITORIUM

OF THE RALPH WALDO EMERSON JUNIOR HIGH SCHOOL, LOS ANGELES, CAL. RICHARD J. NEUTRA, ARCHITECT

SCHOOL FOR CRIPPLED CHILDREN

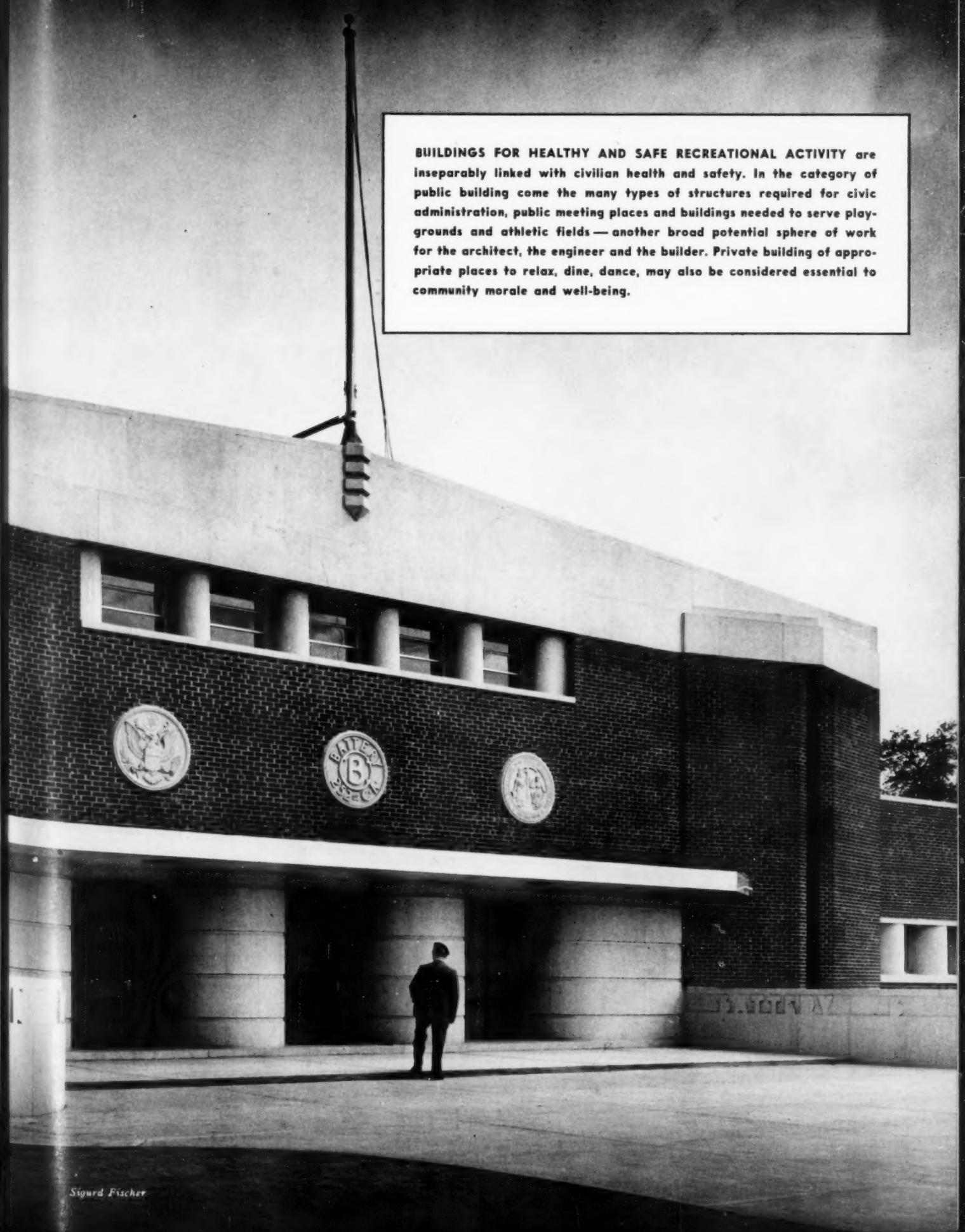


Haskins Commercial Photo Co.



R. J. DeLANO SCHOOL, KANSAS CITY, MO. KEENE AND SIMPSON, ARCHITECTS. A specialized (but frequently needed) type, this school is designed expressly for the use of crippled children, cardiac cases, the visually deficient and the hard of hearing. One whole wing of the building is devoted to therapeutic activity. Incorporation of a therapy department with the school structure — equipped with a separate entrance — suggests a possible solution for communities which need a health service center that can be shared by school children and adults alike. The school was awarded a medal by the Kansas City Chapter of the AIA for outstanding architectural design and planning. General contractor: S. Patti Construction Co.

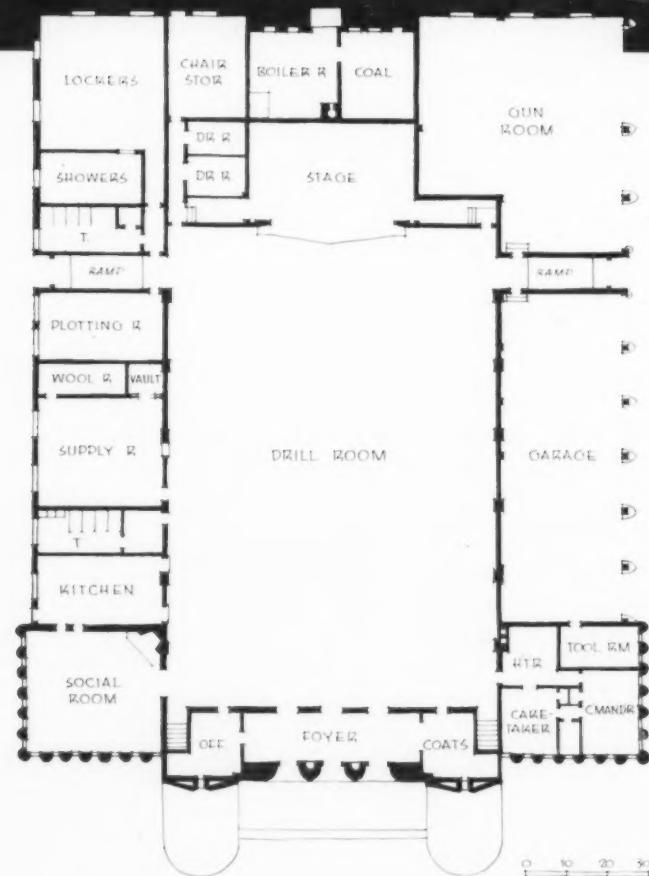
AMERICA'S BUILDING NEED . . . FOR RECREATION



BUILDINGS FOR HEALTHY AND SAFE RECREATIONAL ACTIVITY are inseparably linked with civilian health and safety. In the category of public building come the many types of structures required for civic administration, public meeting places and buildings needed to serve playgrounds and athletic fields—another broad potential sphere of work for the architect, the engineer and the builder. Private building of appropriate places to relax, dine, dance, may also be considered essential to community morale and well-being.

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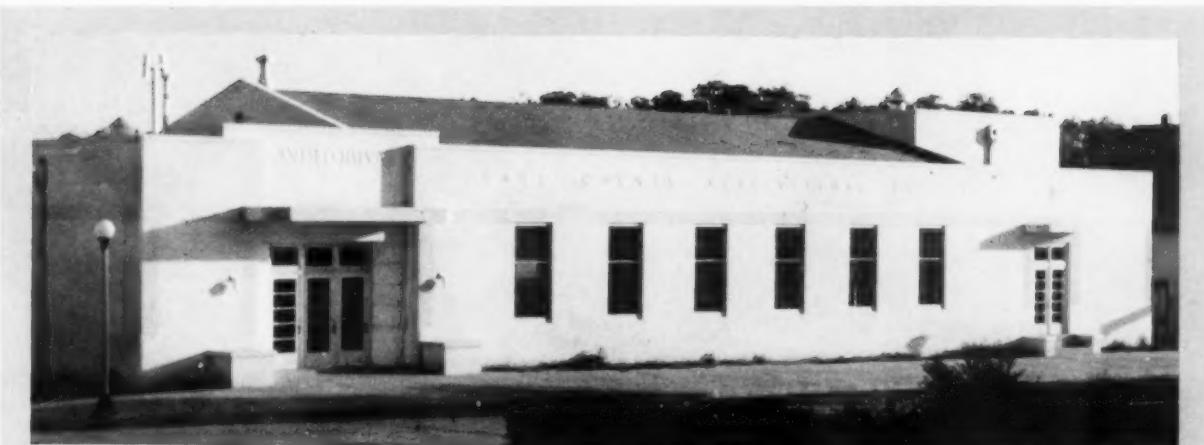
Sigurd Fischer



ARMORY-AUDITORIUM

ARMORY AT LUMBERTON, N. C. JOS. J. SAWYER, ARCHITECT.

This structure was built for use as both armory and civic auditorium for a city of 25,000 population. Civic and other groups use the social room and kitchen. The kitchen facilities can care for 500 diners seated at tables in the drill hall. Space is provided for two large coast artillery guns (one in firing, one in traveling position) and several trucks. Offices for the Commander and caretaker are at the front of the building. Behind the building is an athletic field for baseball and football. Masonry walls support a steel-framed roof. Cost: approximately \$102,000. W. M. Burney was general contractor.



Portland Cement Assn.

AUDITORIUM

CASS COUNTY AGRICULTURAL SOCIETY AUDITORIUM, WEEPING WATER, NEB. N. BRUCE HAZEN, ARCHITECT.

The building serves a triple purpose—added exhibit space for the annual county fair; permanent quarters for the Agricultural Society and the Farm Bureau; and civic center for the village of Weeping Water. The auditorium is used for community gatherings of all sorts, lectures and theatricals. As the building is always open, the toilet facilities provide a public comfort station (badly needed in many defense towns). In the basement is a kitchen and banquet room. Basement and exterior walls are of architectural concrete. The main floor is of concrete beam and joist construction; the roof, sheet plywood (which had previously been used as forms) over steel trusses and channel purlins. All interior walls are plastered. Auditorium and stage have maple floors; other floors are finished concrete. Cost: \$42,000. S. C. Lein was in charge of construction.



Southern Photo and News

COMMUNITY CENTER

ADMINISTRATION BUILDING, RIVERVIEW TERRACE USHA PROJECT, TAMPA, FLA. FRANKLIN O. ADAMS, SUPERVISING ARCHITECT; FRANK A. WINN JR. & NORMAN F. SIX,

ASSOCIATED. Headquarters for a 328-unit project. Throughout, a reinforced concrete framing system supporting walls, floors and roof was employed. To eliminate leakage and dampness, a novel system of wall air space was introduced. Hollow space within the walls was opened up to the outside at the bottom by means of small ports of 8 to 10 sq. in. in area, so located as completely to relieve rarefied air within the walls and to maintain air inside and outside at equal pressure. In addition, copper vents are spaced at the top of walls just under the overhang of the concrete roof slab to obtain circulation of air within the walls.

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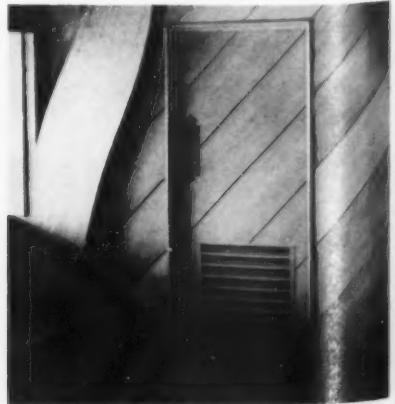
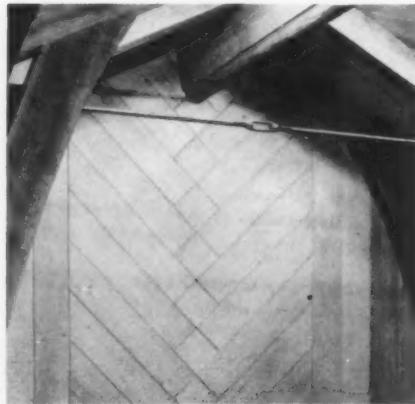


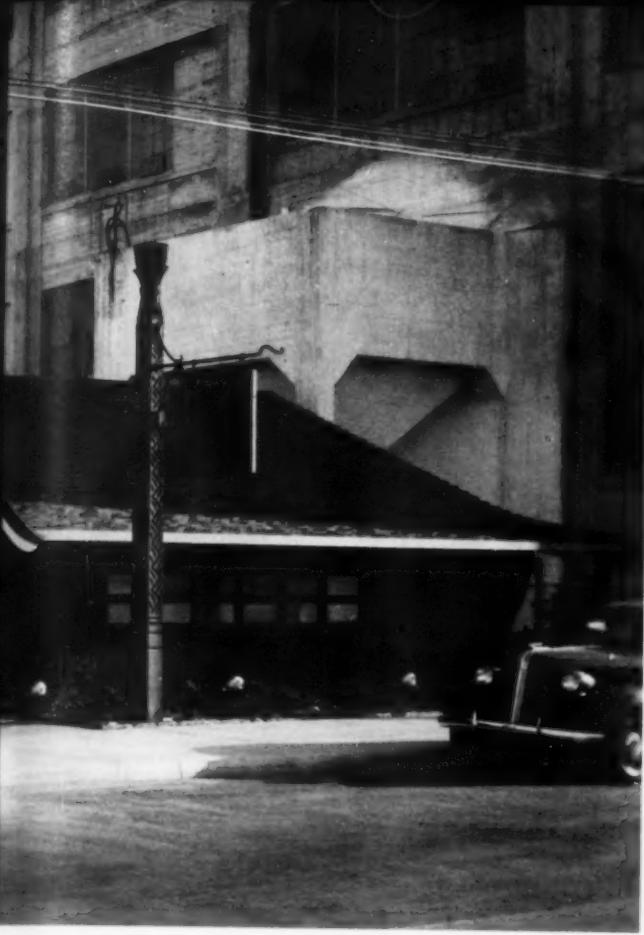
TAP ROOM

TAP ROOM FOR THE ACME BREWING CO., LOS ANGELES, CALIF. WILLIAM G. MERCHANT, ARCHITECT.

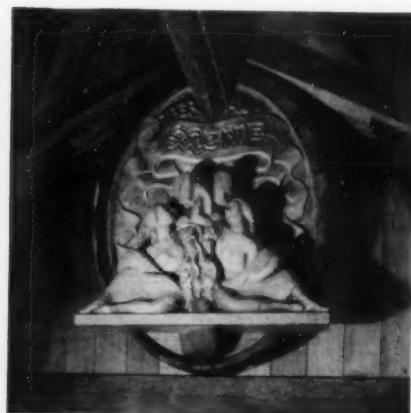
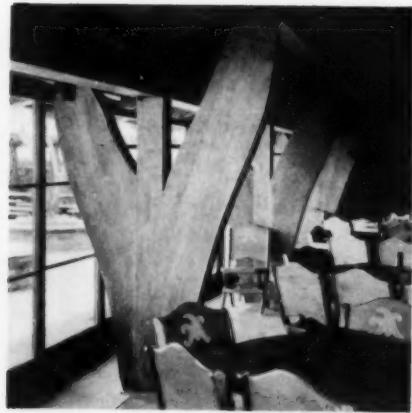
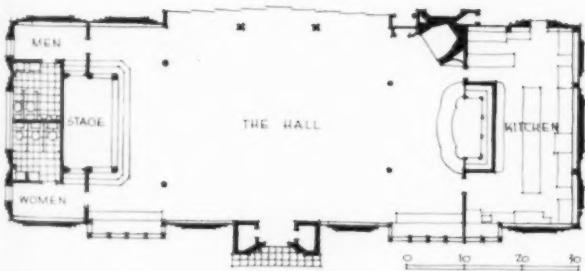
This particular tap room was designed as an adjunct to an important brewing company to accommodate 150 guests. While it could hardly be considered a likely municipal facility, it is, nonetheless, a type of reputable entertainment and relaxation center for which many defense areas have a real need. And because this one has been so expertly handled and makes so interesting a use of wood—redwood in this instance—we include it in this summary presentation. Of special interest are the flying knee braces spaced regularly in the walls of the building supporting the roof. Besides carrying the roof loads, these braces take up considerable lateral forces, making possible the very wide eave overhang (a device, incidentally, which makes elimination of metal gutters, downspouts, etc., entirely feasible). The roof is of cork, made shingle fashion $1\frac{1}{4}$ in. in thickness, which affords a high degree of insulation. With the exception of the bar, which is worked out in rosewood and stainless steel, the entire building is built of dense select all heart redwood. The general contractor was Noel M. Calhoun.

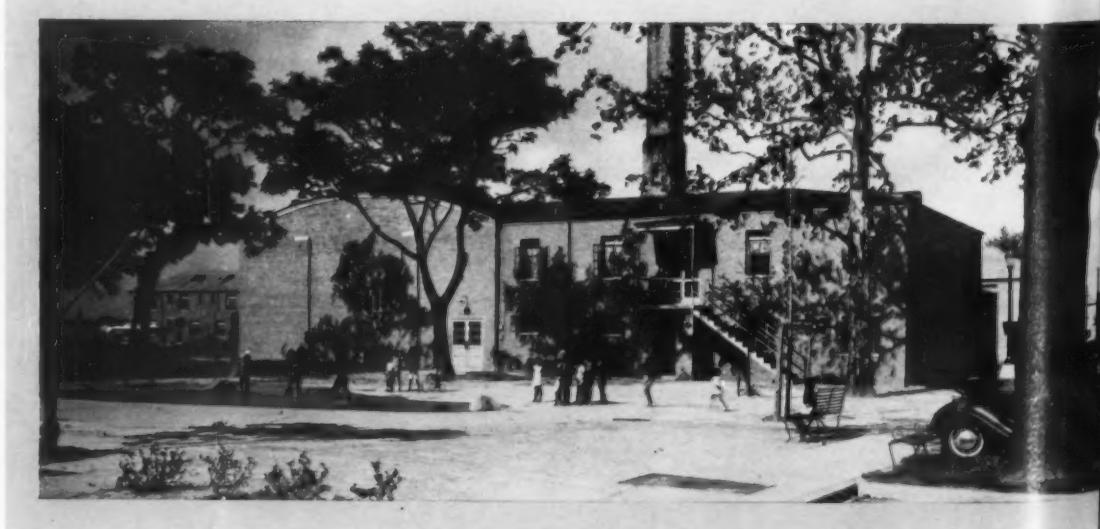
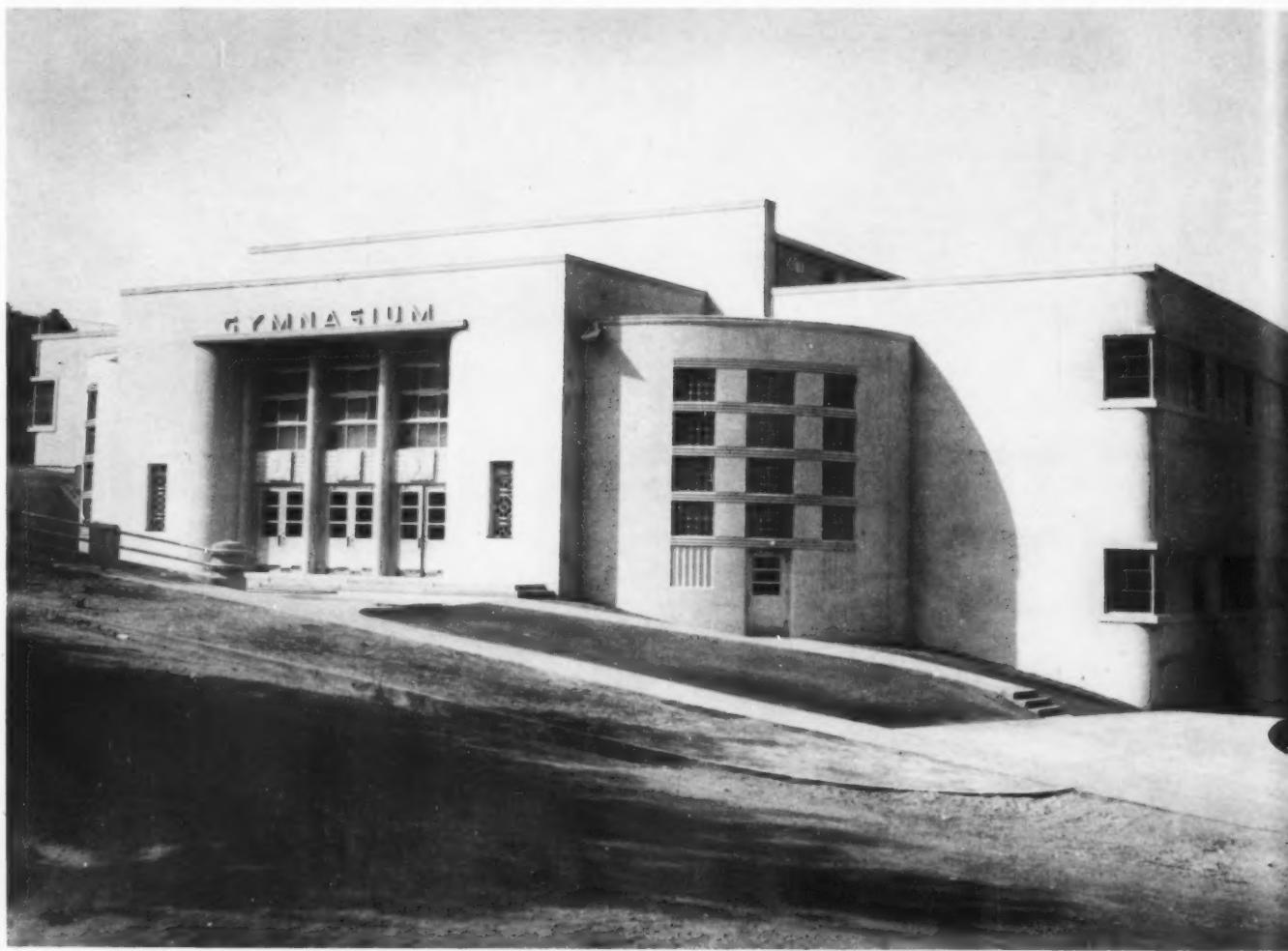
DETAILS—Wood Carving by Robert Howard





Photos by Miles Bernic, courtesy California Redwood Association

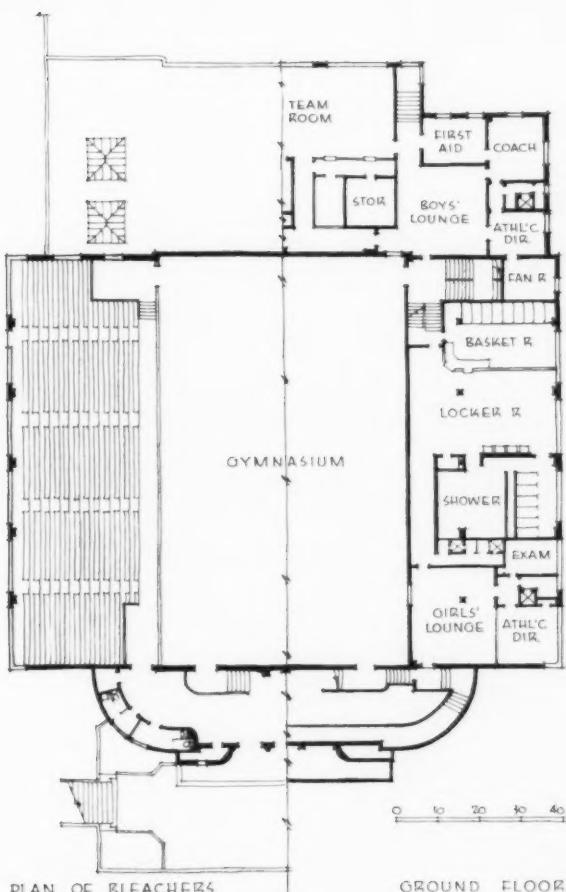




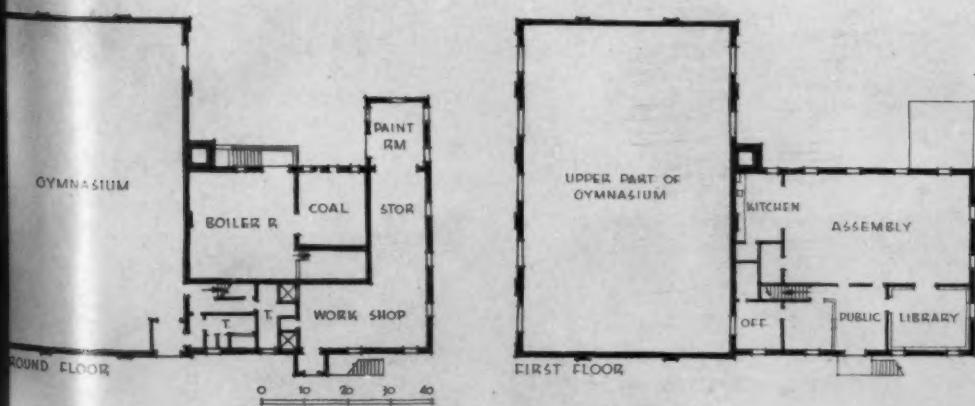


GYMNASIUM

HIGH SCHOOL GYMNASIUM, THE DALLES, ORE. JOHN W. MALONEY, ARCHITECT. Both structural frames and walls are of concrete. The building, located on a sloping site, provides facilities for physical training and athletic needs of the local high school. But such a structure might well fit in with the recreational needs of defense towns in various parts of the country. Walls are 8-in. thick and are used without furring. For sound control, $\frac{3}{4}$ -in. insulation board is used in the ceilings, the sheets being placed in the forms and the concrete of the slab placed directly on them. The contractor was The Ekrem Construction Co. Cost (made possible through a PWA grant) was \$104,000.



COMMUNITY CENTER



COMMUNITY HOUSE, NEW BROOKLYN HOMES (USHA), WILMINGTON, N. C. LESLIE N. BONEY, ARCHITECT. Illustrative of a structure serving the basic needs economically, this building combines community center facilities with the housing project power plant. The gymnasium opens out on two sides to the community playgrounds. At ground floor level is a sizable workshop and storage room. Above are an assembly hall, serving kitchen, small library and the necessary office and public spaces. General contractor for the project was T. A. Loving and Co.



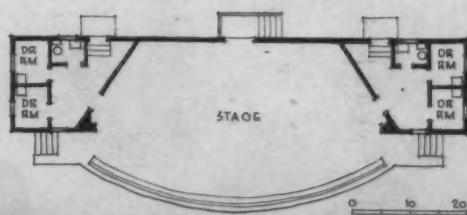
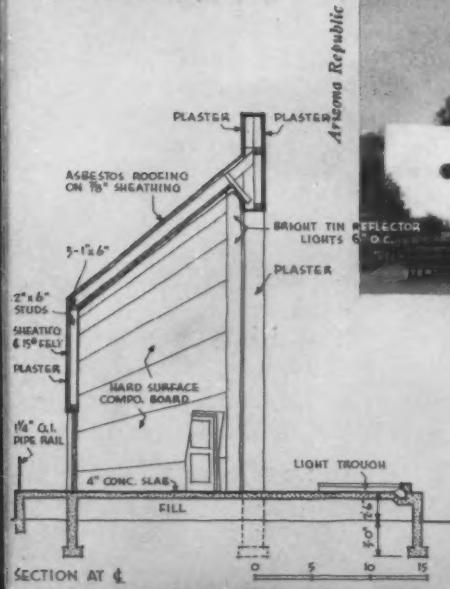
DANCE HALL

THE PALLADIUM, LOS ANGELES, CALIF. GORDON B. KAUFMANN, ARCHITECT. A large, privately operated dine-and-dance place, this illustrates a type of facility which would be widely used in any defense area or town adjoining a cantonment. Located on one of Los Angeles' main boulevards, the dance floor occupies 12,000 square feet of area. Hastings and Quinn were the general contractors.



Photos by Hamilton

BAND SHELL



ENCANTO PARK MUSIC SHELL, PHOENIX, ARIZ. LESCHER AND MAHONEY.

ARCHITECTS. This outdoor band shell consists of a stage 50 ft. in width converging to 38 ft. at the rear of the stage. Overall depth is 30 ft.; depth under the covered portion is 16 ft. Access steps to the stage occur at each side and at the rear center. Shell opening rises to a height of 25 ft. above the stage floor, which comes down to 16 ft. at the rear. Stage is 2 ft. 6 in. above grade. The stage floor is of reinforced concrete construction; the shell is a built-up continuous semi-arc wood truss. The tapered arc ceiling is made of a hard surfaced composition board. Entire exterior of the shell is stuccoed over wood sheathing and building paper. Roof is of composition surfaced with a white asbestos cap sheet. Contractor for the music shell was The William Peper Construction Co.

OFFICE AND COMMERCIAL BUILDINGS

A BUILDING TYPES STUDY

★ IN LISTS OF PROJECTS Federally approved as essential to civilian life, commercial buildings do not at present appear. In newspapers, word may be found of priorities granted for repair and maintenance of, for instance, stores. This may be justifiable as temporary policy under existing conditions.

Is it, as permanent policy, wise?

Consider the defense worker who suddenly finds himself part of a brand-new community, or of a municipality trebled in size overnight. The defense house we build him is far from stores. The new fire station does not furnish him food. He finds it hard to reach clothing stores to outfit his children for their new school. And the insurance man's office, where he might be buying an annuity, is miles away. The equally distant dentist's office is too busy to give him an appointment.

There you have a man working to uphold the American way of life, but he can't get food, clothes or necessary professional help without a terrific struggle. Stores are far too few, or non-existent locally. What is perhaps worse, a policy of ignoring such a definite need can interfere with the storekeeper's or the professional man's well-being to a greater degree than an emergency warrants.

For these, all of them, are the people who make America worth defending. To lower standards too far might be giving the totalitarians a victory without a battle.

The hypothetical case just outlined is not farfetched. That its existence is becoming recognized is evident when word comes of at least one defense housing project, now being planned, which contains several community shopping centers.

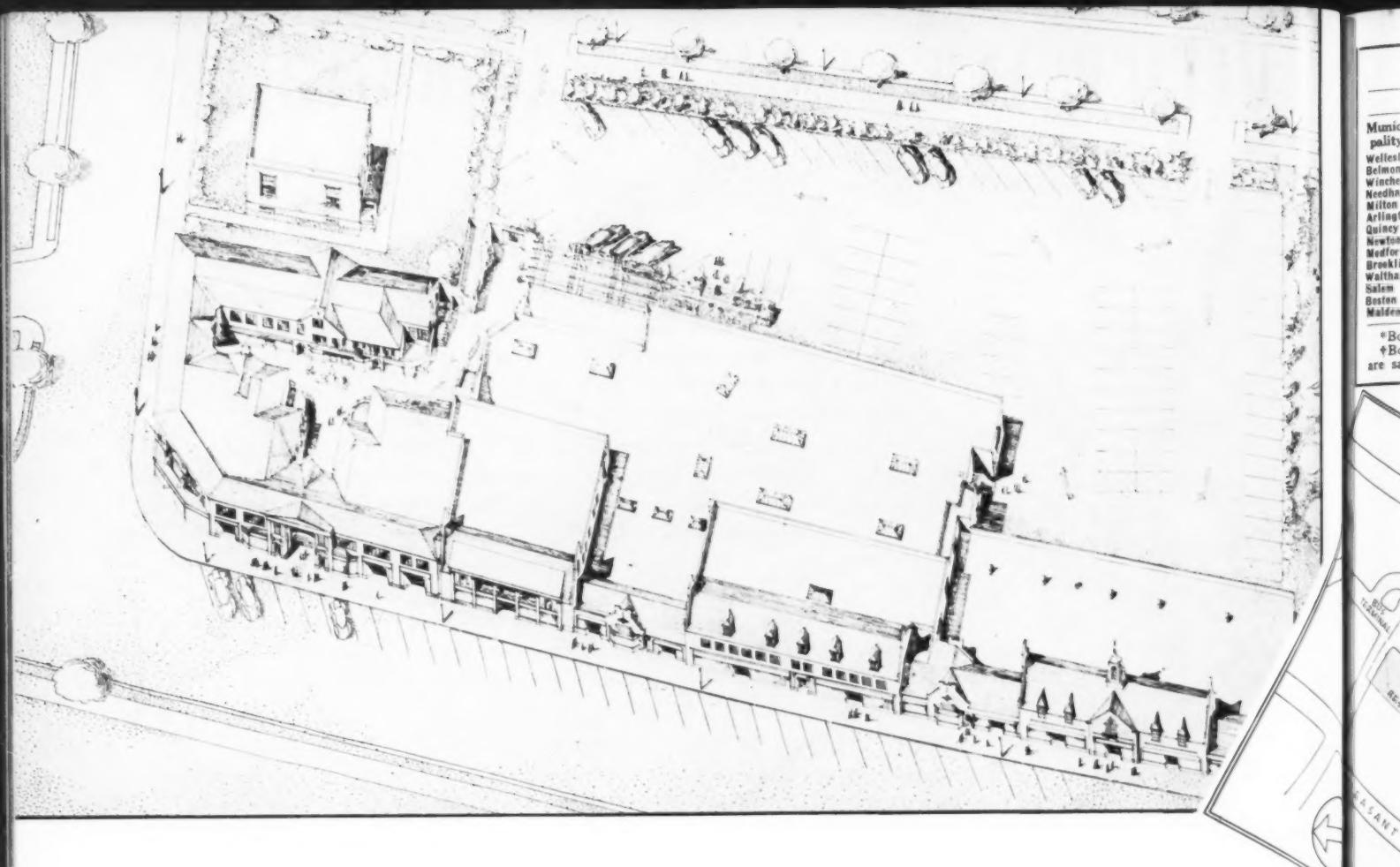
★ JUST AS IMPORTANT as recognition of the need is the manner of providing for it. It is imperative that shops or commercial buildings be designed for their specific communities. Problems of site, of planning, of types of facilities to be provided are as varied as the communities they will serve. Perhaps, as a Washington, D. C., realtor tells us, requirements can be pretty definitely limited, economically, to provisions for groups of ten stores, one or two of them 40 or 50 ft. by 100 to 150 ft., the remainder 20 or 25 ft. by 65 to 75 ft. This same source, operating on congested city land, finds parking space at such a premium that second-floor recreational establishments or offices are undesirable; one-story buildings seem most suitable. In another locality a different set of requirements might hold.

But even more important are the basic considerations: direction of municipal growth; local values as indicated by assessments; the present demand (a false situation which must yet be met); normal rates of population change—in urban areas possibly a decline, or in suburbs a steady increase, or in the far more numerous medium-sized municipalities, even regularly periodic changes.

Depending on the results of this kind of research, buildings may be temporary—designed for future remodeling to meet an anticipated demand, or for destruction or removal when the emergency disappears. Or they may be planned as permanent assets to a growing community. Only by some such program can new tragedies of waste be averted.

Construction in the face of existing material demands should not appear impossible. Nothing of this kind has ever been impossible to Americans. We may build of materials least affected by priorities; we may eliminate all but the essential minimum of scarce materials; we may find new design techniques to utilize substitute materials. We might get priorities.

Would it be such a calamity if, supposing storefront metal stocks should be exhausted, we should build storefronts of wood and glass?



COMMERCIAL BUILDING FOLLOWS POPULATION TRENDS

LOCATELLI BUILDING, BELMONT, MASS. JOHN EDMUND KELLEY, ARCHITECT. The Albert J. Locatelli Company, builders and owner-operators of this project, had had much experience with commercial developments. Therefore they considered population and assessed valuation records when selecting a community for their newest venture, and spent some time in checking the types of stores already available against the normal needs of such a community.

The comparative population and valuation figures (page 83) indicate that Belmont is one of the most rapidly growing communities in the greater Boston area, if not in the entire Commonwealth of Massachusetts. However, they do not include several salient facts:

- 1—Belmont's growth was phenomenal from 1925 (pop. 5,256) to 1930 (pop. 21,748).
- 2—No new stores had been built in its shopping and municipal center since 1928.
- 3—The shopping and municipal center is also the geographic center, not only of Belmont as a whole, but of that part of Belmont which was experiencing the greatest home building activity; and of community interests centering in churches, schools, etc.

From these facts it was evident that a need for shops and a limited amount of office space existed. Study of shops already established determined what kind of new stores would be most likely to succeed. These ranged from a laundry pick-up station to a branch department store. Parking space for 220 cars was provided in the rear, with direct access to all stores. A strip of street frontage, 12 ft. deep by 500 ft. long, was deeded to the town to provide for diagonal parking in front.



POPULATION AND VALUATION CHANGES
FOR SUBURBAN BOSTON MUNICIPALITIES

Municipality	POPULATION			ASSESSED VALUATION		
	1930	1940	% Increase	Municipality	1917	% Increase
Wellesley	11,439	15,048	23½	Belmont	\$13,545,492	\$51,493,324
Bedford	21,748	26,825	19	Arlington	19,934,504	62,778,463
Winchester	12,719	14,969	15	Medford	33,157,118	83,506,374
Needham	10,849	12,475	13	Quincy	46,020,016	130,982,970
Milton	16,434	18,620	11½	Needham	10,944,703	25,942,164
Arlington	36,098	39,939	10½	Wellesley	22,003,957	40,516,841
Quincy	71,983	76,605	6	Waltham	34,312,676	59,728,360
Newton	65,276	69,623	6	Newton	97,251,107	167,301,170
Medford	59,714	63,123	5	Winchester	20,147,523	32,855,092
Brookline	47,494	49,278	3½	Malden	47,461,453	74,147,773
Waltham	39,247	40,694	3½	Cambridge	147,368,200	196,554,808
Salem	43,353	41,303	4½	Milton	36,879,571	38,777,417
Boston	781,189	769,520	1½			
Malden	58,034	47,836	1			

*Boston Daily Globe, July 23, 1940

†Boston Herald, December 26, 1937. In many municipalities assessments are said to be far greater than "fair value."



ABOVE, map of entire town; LEFT, map of the central shopping and municipal district. Note that within a half mile of the Locatelli Building are the town hall, library, utilities buildings, post office, railroad and bus stations, and all churches and schools



Henry E. Tonke

LOCATELLI BUILDING: J. E. KELLEY, Architect (continued)

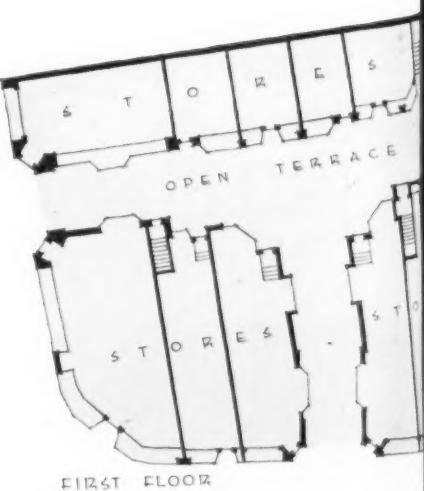
THE TYPE of building, and of stores, was determined by the character of the surrounding homes. Most of the latter were built within a radius of two miles of the center, and cost from \$10,000 to \$40,000. They supplied a ready outlet for good quality merchandise at fairly good prices, which would enable merchants to pay for good quarters. Demand for office space was limited to a few suites for small professional offices, headquarters for a small drug store chain, the Locatelli Company's own offices, etc.

The building was planned for erection in three units, of which one was completed in 1939, and the second in 1941. In the first unit, smaller stores were provided for; quarters are uniformly 65 ft. deep, vary from 13 to 28 ft. in width. Each store has an individual heating unit with thermostatic control.

The second unit contains 6 stores, 11 offices and a janitor's apartment. Stores in this section range from 1,000 to 15,000 sq. ft. in area. All are heated by a central plant.

Appearance of the building is designed to harmonize with the architecture of public buildings in the center. Small units rather than a single large structure were decided upon, because it was believed that, with small units, changes could be more easily made to suit tenant requirements.

Construction of exterior walls is brick and stone with wood trim. Floors are supported on steel framing to facilitate structural changes to suit tenants. Noteworthy in plan are the concourses, which lead from the landscaped parking area to stores.



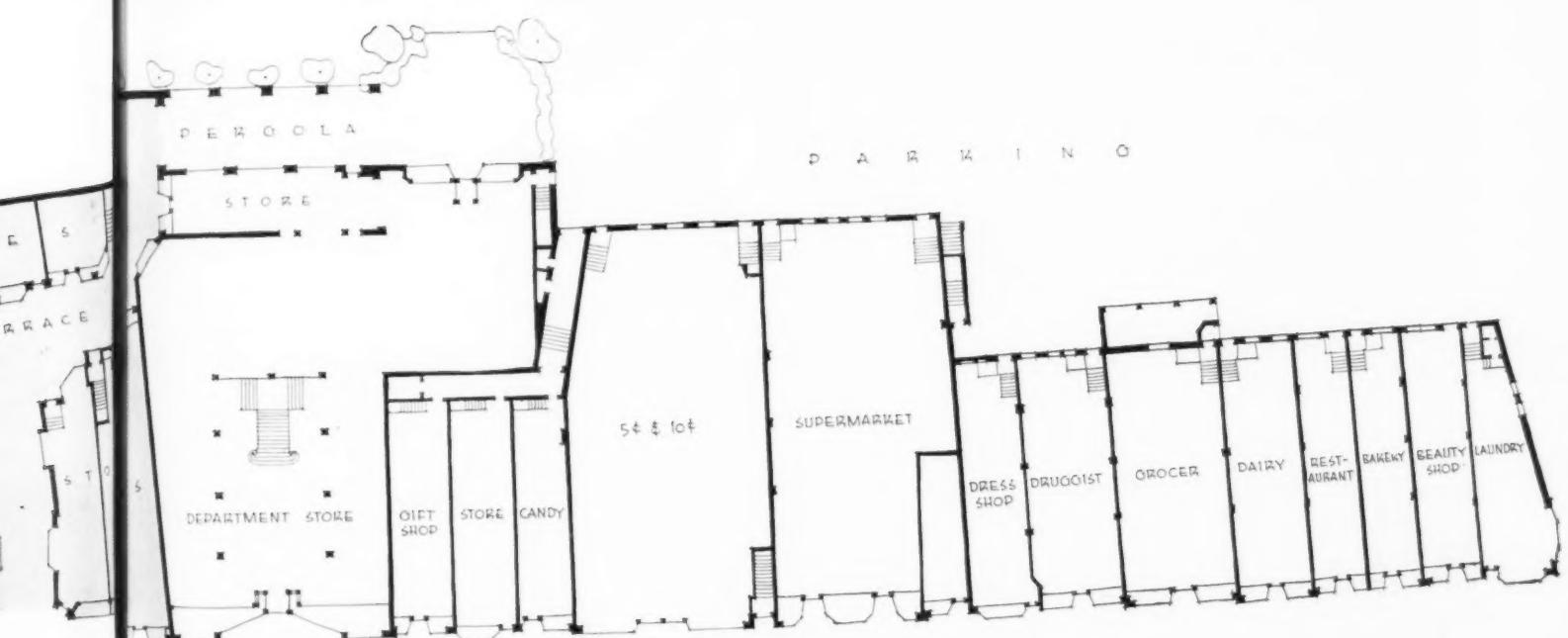
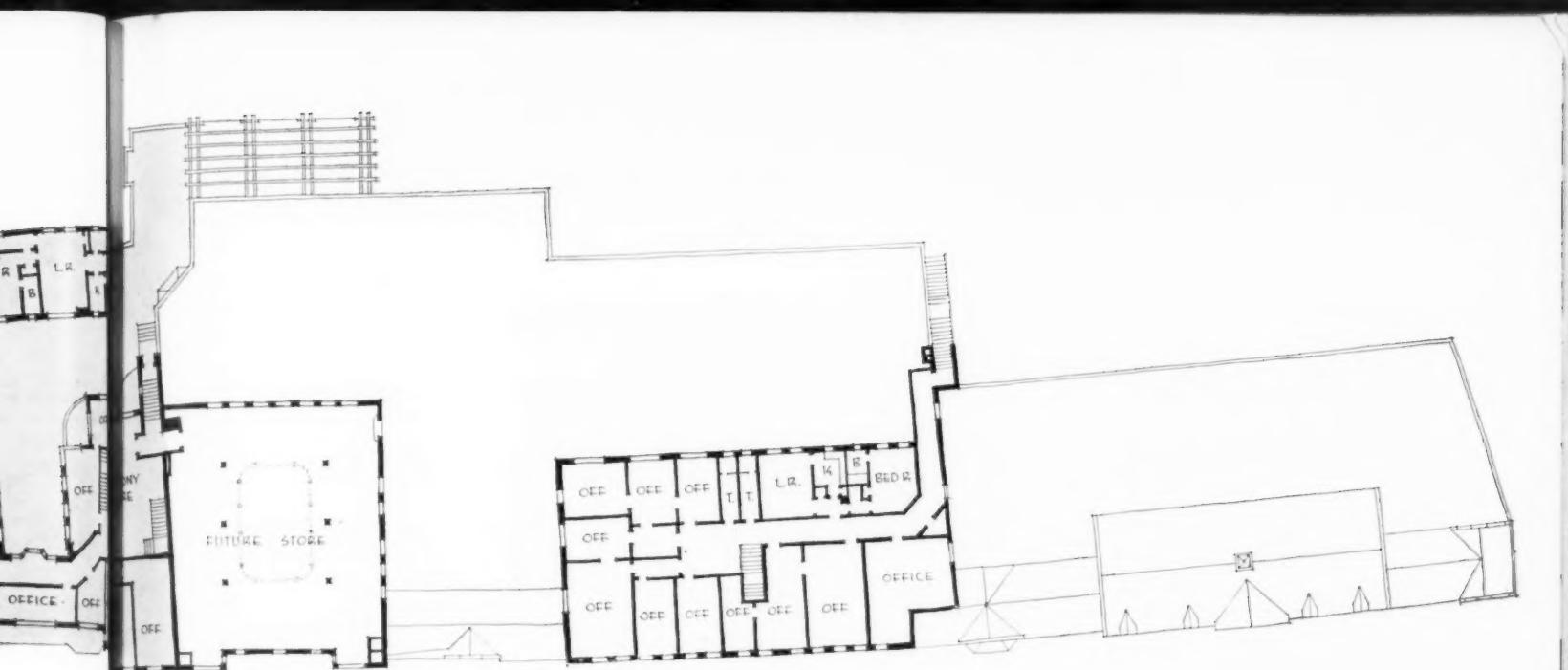
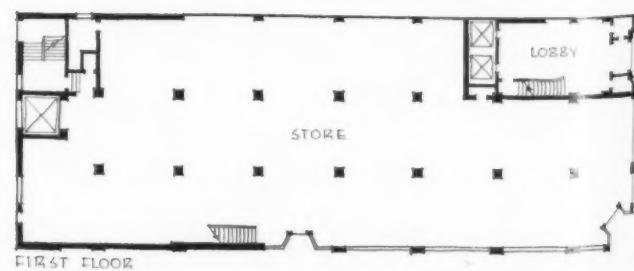
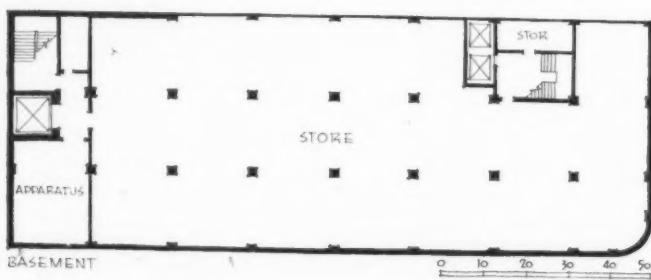
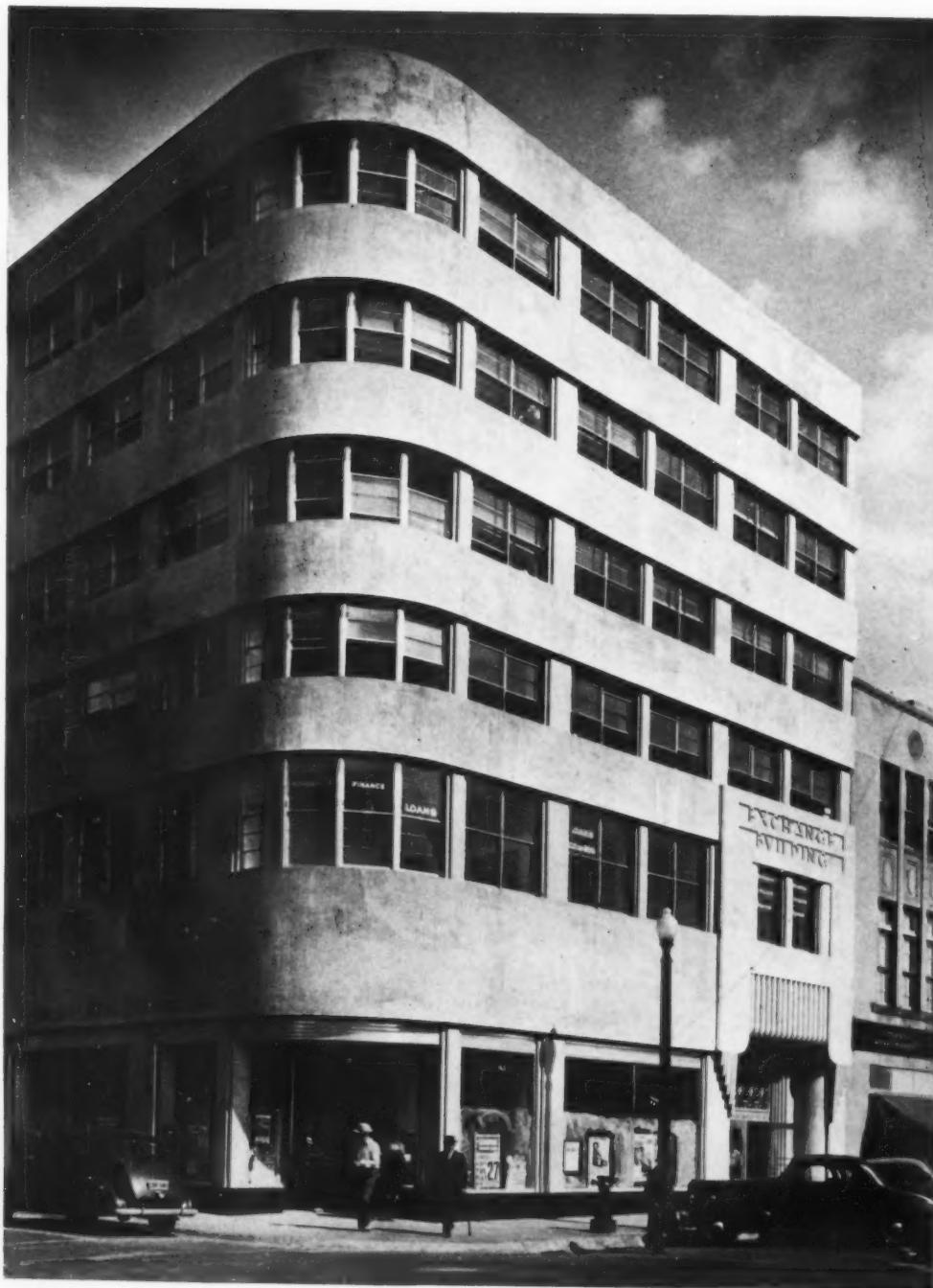


Photo at left shows the two completed units. Plans show all 3 units

Henry E. Tovle

FLAT SLABS REDUCE CUBAGE



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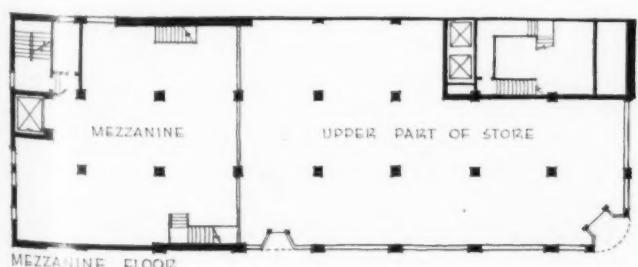
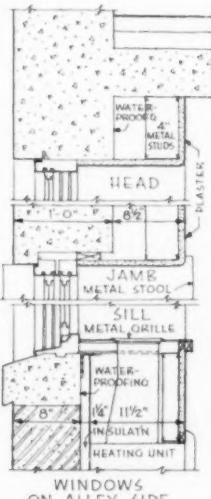
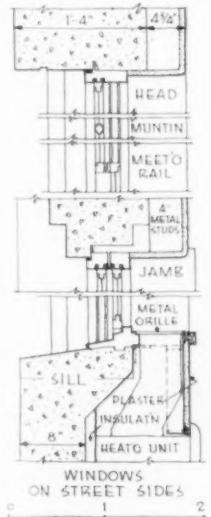
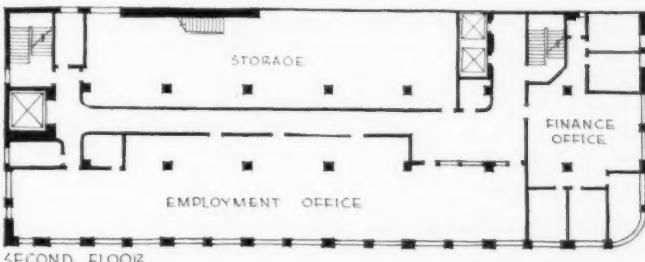
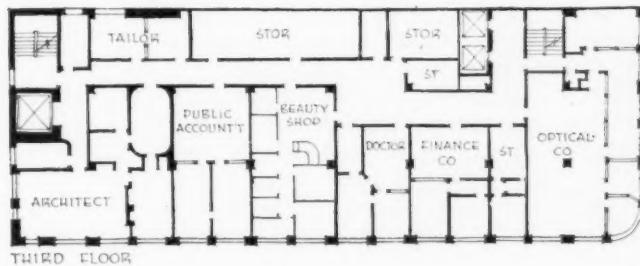
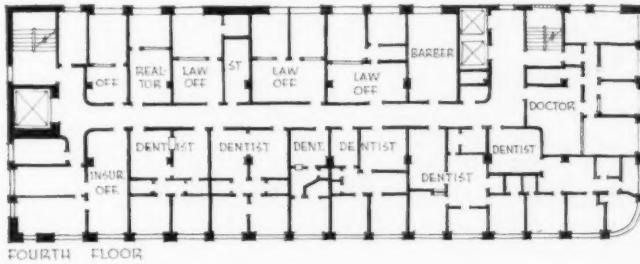
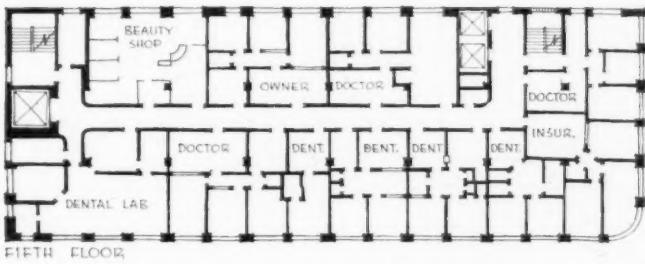
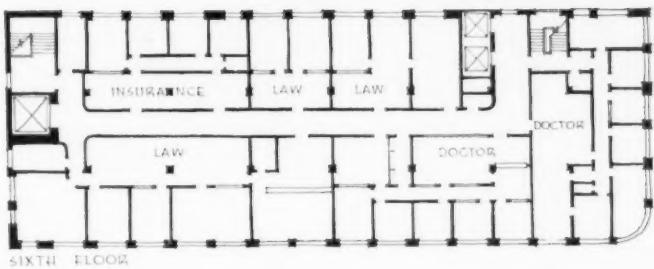
IN SIX-STORY BUILDING

EXCHANGE BUILDING, LA CROSSE, WISC. J. MANDOR MATSON, ARCHITECT. At least \$35,000—and a full story in height—were saved in constructing this monolithic concrete building. Savings were due to economical design, careful attention to forms, close supervision of concrete mixing and placement.

Code requirements determined the thickness of the flat slabs; ceiling heights in office floors above the mezzanine are uniformly nine ft. The flat ceilings were in some cases acoustically treated, in others treated with Swedish putty and painted. In every case, the smooth surfaces permitted great freedom in locating interior partitions, thus reducing costs of tenant alterations.

Forms were of plywood with a lacquered surface, and were treated with a tallow cement at joints. The first precaution prevented damage and staining when forms were re-used; the second prevented spillage at exterior spandrels, columns, etc. Ornamental work was formed against milled, lacquered white pine. Ceiling forms were of fibreboard.

Concrete mix was carefully analyzed, tested, and checked at the point of mix. In pouring, voids were kept at a minimum by constant puddling in the forms. Concrete in columns had to be vibrated, due to the amount of steel. Exterior surfaces were given a 2:1 wash, let stand a few hours, and rubbed with carborundum stone.





Photos by Moon

ARCHITECT'S OFFICE, one of 83 business suites

CARE IN DESIGN and construction resulted in concrete which needed a minimum of patching when forms were stripped—another source of savings.

Several design features are noteworthy. Spandrels are projected four in. beyond exterior column faces. This provides, on inside surfaces, reveals in which air conditioning and heating units are installed. Lighting and plumbing risers are furred in with columns, with capped outlets, reached through access doors, at each floor. The rounded corner of the building is designed to provide a setting which appears more spacious than is actually the case; the street intersection on which the Exchange Building sits is rather narrow.

Roof construction is flat slab, with two-in. insulation and a 20-year built-up roof. Interior partitions on office floors are of expanded steel, to accommodate piping. Office ceilings are acoustically treated or painted. Corridor ceilings are furred to take air conditioning ducts.

The entire building is air conditioned, with the same units used in winter for circulating heated air; in summer, cooled air. One of the elevators has a dual control so that it may be run by tenants.

The building was 80 per cent occupied before it was officially opened in June, 1941. The contract price was \$176,228. Dr. Frank J. Hoeschler is the builder-owner.



CORRIDOR ceiling furred to house ducts



OCCULIST'S offices: note lighting



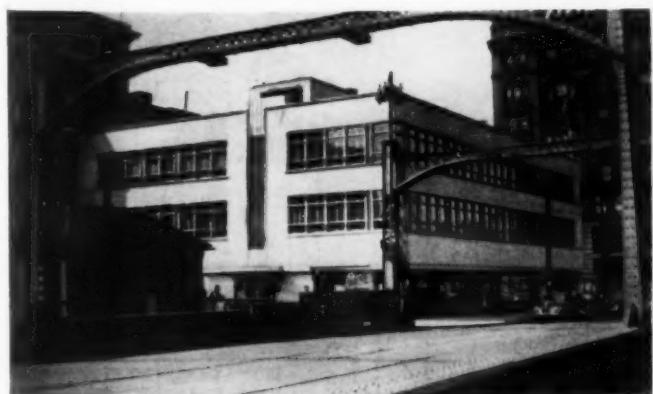
TYPICAL OFFICE with acoustic ceiling



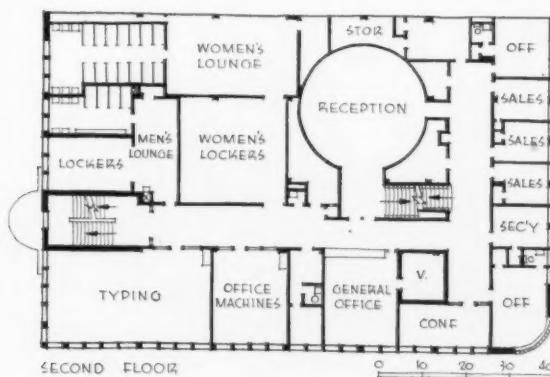
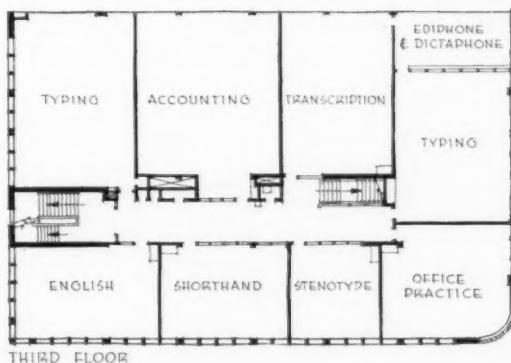
FIXED SASH AND AIR CONDITIONING BAR NOISE, DIRT

BUSINESS INSTITUTE BUILDING, MILWAUKEE, WIS. EBLING &

PLUNKETT, ARCHITECTS. The first office building of any size to be erected in downtown Milwaukee in a decade, this building provides for stores on the first floor and a private commercial school on upper floors. The site, on the Milwaukee River, offers satisfactory natural lighting conditions; but traffic noise, and downtown soot and dirt, had to be combatted. Consequently windows are fixed and double-glazed; building is air conditioned, though recessed radiators heat toilet rooms and first floor stores. Fluorescent lighting in classrooms supplies 45-50 ft. candles, even in the rooms without natural light. Construction of lower stories is reinforced concrete; top floor is steel-framed. Most ceilings are acoustically treated. Roof is of metal decking, insulated, and can be flooded for summer cooling. General contractor was the Selzer Ornst Company.



STUDENT ENTRANCE is from river terrace.



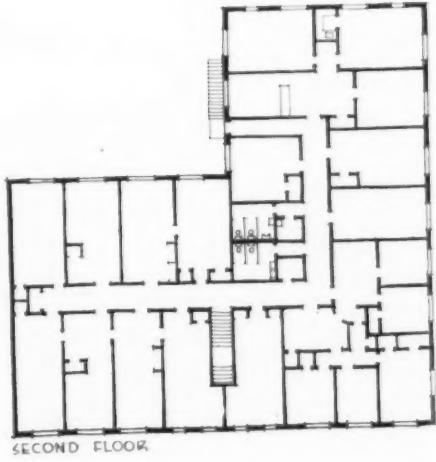
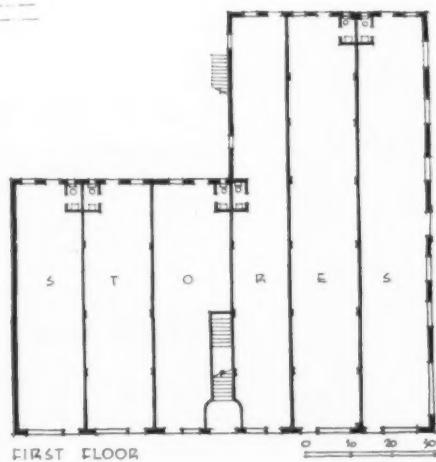


BUILDING No. 2

PLANNED FOR MODERNIZATION



TYPICAL plans,
at right, are of
Building No. 2





Photos by Miles Berné, and The Mott Studios.

BUILDING No. 3

ON AS VALUES DEVELOP

CORINNE GRIFFITH BUILDINGS, BEVERLY HILLS, CALIF. ALLEN G. SIPLE, ARCHITECT FOR BUILDINGS 1 AND 2; PERCY P. LEWIS, ARCHITECT FOR BUILDING 3. These three office-and-store structures occupy three corners of an intersection one block off busy Wilshire Boulevard. They were built largely as an investment to carry taxes on the properties, in the belief that the sites eventually will increase in value. Construction is economical—wood frame, reinforced masonry walls, and caisson footings—but was planned to permit additions if the rental value of the site increases.

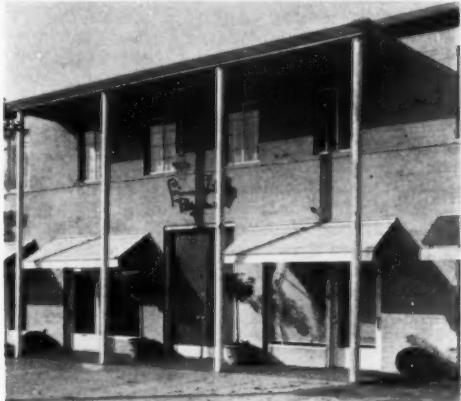
For example, the two identical structures (Buildings No. 1 and No. 2) are set back five ft. from the property line to permit future construction of store fronts of more metropolitan character when income value of the stores warrants. The type of tenant now attracted to these stores is such that window display is a secondary consideration, so the five-ft. setback is landscaped.

Rental value of stores is at present about \$6 to \$8 per ft. per mo. Corresponding value on Wilshire Boulevard, a block away, is \$15 per ft. per mo. Store fronts on Wilshire Boulevard often cost about \$200 per front ft.

Provision for future improvement is also evidenced in the second floors, which contain no structural walls, other than the envelope; roof is supported solely by columns, to permit flexibility in arrangement. Temporary partitions are wood stud and plaster. Because many tenants are motion picture agents, offices are arranged in suites.

Building No. 3 is related to the other two in appearance, but is not set back from the street. On all three, awnings are formed of adjustable wood slats.

Fred Snell was general contractor on all three buildings.



IF VALUES INCREASE and different storefronts became desirable, the present five-ft. setbacks may . . .



. . . be utilized for new store facades, as was done in this building, also by ALLEN G. SIPLE

CONSERVING METALS WITH STONE AND GLASS VENEERS

By FRANK G. LOPEZ JR., Associate Editor, ARCHITECTURAL RECORD

With the numerous new materials developed in recent years, the face of America's typical business street has been vastly changed—it is cleaner, more attractive, more successful from the merchandising point of view. But some of these materials are now hard to get; others, in themselves readily obtainable, may require supplementary use of strategic metals. It is the purpose of this brief review, and of the Time-Saver Standards which follow, to indicate means of reducing the amount of scarce materials required, and thus aid designers and builders of essential commercial buildings.

Surfacing materials ordinarily available in sheet or slab form, and adaptable for facades of commercial buildings, include: *natural stone veneers; structural glass; concrete slabs and cast stone; terra cotta; sheet metals and combinations of metal or glass and other materials.* Types italicized are apparently most readily available.

MATERIALS AVAILABLE

Natural stones may be divided into two broad classes: 1, *hard, crystalline or coarse-grained stones*, generally available in relatively thick slabs (1½ in. to 2½ or 4 in. for granites; usually 4 in. for limestones, etc.; approximately 2 in. for bluestones, etc.); and 2, relatively fine-grained stones, usually available in comparatively thin slabs (marbles, soapstones, serpentines, etc., in thickness from ½ in. up).

Structural glass commonly used for facings buildings is opaque, is usually heavier than window glass; and is available in thicknesses ranging from ½ to 1½ in. Most common thicknesses are 11/32, 7/16, ½ in. Fire-finished structural glass has a surface finish and glaze produced by bringing the surface to a high temperature. Ground and polished—or "plate glass"—finish is mechanically produced, and results in a true plane surface which facilitates setting, provides a uniform, homogeneous slab, and exposes rich interior colorings.

CONSTRUCTION IN STONE

Relatively thick stones (approx. 4 in.) can be tied into the wall by providing bond courses; few or no metal ties to backing masonry are required.

Relatively thin stones (½ in. and up) ordinarily require metal ties to the backing material; and, if the facing exceeds prescribed limits in height, supports other than the face-masonry itself are needed. This applies also to such materials as 1½-in.-thick granite; for the average building wall-ties alone are sufficient except over wide openings.

Anchors for stone veneers have, in the past, been formed preferably of non-ferrous, corrosion-resistant material: brass, bronze, monel, etc. With these metals difficult to obtain, manufacturers as a whole agree that corrosion-protected iron wire or straps, of suitable gauge, are reasonably satisfactory.

Usually four anchors are required per

slab; these are sufficient for slabs of the largest sizes commercially available. In such materials as soapstones, tremolites, serpentines, etc., anchors are normally in sides of slabs, two being approximately 6 in. down from the top, two 8 in. up from the bottom.

In many cases, such as window jamb and head returns, return pieces may be doweled to facing slabs, possibly with a saving of one or two anchors per stone. The soft, fine-grained stones can be job-drilled and may be secured (for instance, to bulkhead framing) with long screws. This necessitates either incorporation of the anchorheads into surface decoration, or provision of some means for covering anchor-holes along an edge with a moulding. There are also types of store-front mouldings having a projecting lip which can act as a "retainer" or anchor.

One method of eliminating spandrel anchors entirely consists of securing stone veneer spandrels by means of projecting masonry piers. In this type of work, the stone veneer is keyed behind the pier-facing. Two methods of accomplishing this have been used. The first is to build up spandrels and piers concurrently. The second is to build up piers only, omitting spandrels and spandrel backing, and then to place the spandrels from within the structure and build spandrel-backing in afterward.

At sidewalk level, all types of stone can be secured by imbedding the bottom edge 1 in. or more.

Intermediate supports for stone veneers are ordinarily required every 10 or 11 ft. (in height)—in other words, approximately at story levels. Common practice has been to provide shelf angles concealed in joints and secured to backing material. These may be limited to units each 4 in. long, so placed that each shelf angle supports corners of two adjacent slabs. It is also possible to design projecting belt courses of concrete or masonry units, securely bonded to the backing, which supplant the shelf angle.

CONSTRUCTION WITH STRUCTURAL GLASS

The City of Chicago has set up standards of good practice for the use of structural glass, which are subscribed to by leading manufacturers. Some restrictions implicit in these standards may be waived due to shortages.

Sizes of slabs are held to a maximum of 10 sq. ft. if not more than 15 ft. above the sidewalk. Above 15 ft., area may not

exceed 6 sq. ft. Maximum length of any piece is 48 in., and the minimum thickness 11/32 in. unless heat-treated.

Backing has to be substantial, rigid, incombustible, a true plane, plumb and straight (stone, concrete, brick, tile, concrete block, cement plaster on metal lath on studs 12 in. o. c.).

Setting can be done only when backing is thoroughly dry and has had an approved bond coat (100 per cent coverage). Glass has to be set with mastic cement in sufficient quantities to insure at least 50 per cent coverage after the glass is in place.

Construction details. Where glass extends to sidewalk, each section has to rest in a metal moulding set at least ¼ in. above the highest point of the sidewalk. More common practice is to provide a ¼-in. cushion strip between glass and sidewalk.

If a bulkhead is over 26 in. high, glass has to contain at least one horizontal joint between sidewalk and window.

At joints, all abutting edges must be ground square; and all glass-edges have to be well buttered with pointing compound. Mitres are prohibited except for very wide angles.

If glass is confined between non-resilient materials, a ¼-in. expansion joint is required at each end. Otherwise, terminations are covered with metal mouldings so designed that they can be caulked watertight.

Shelf angles are required at each horizontal joint, starting 36 in. above sidewalk level. These may be short lengths, as indicated for stone veneers.

Mechanical fastening, in addition to mastic, is required above lintel level. This (in Chicago) must consist of non-ferrous metal, in lengths of not less than 2 in., at least No. 18 ga., and is required on each vertical or horizontal edge of each piece. Fastenings have also to furnish bearing support as well as hold the glass veneer in a vertical plane.

Precautions. No glass-to-glass joints are permissible. If pointing compound is omitted, a slight pressure will eventually cause small cracks.

Raised lettering, laminated designs, etc., may be secured directly to the glass. However, hardware, accessories such as awning boxes, etc., must be secured directly to the backing, and withheld from structural glass by sleeves.

BUILDING FACINGS—1: Stone Veneers

ARCHITECTURAL RECORD
TIME-SAVER STANDARDS
DECEMBER 1941

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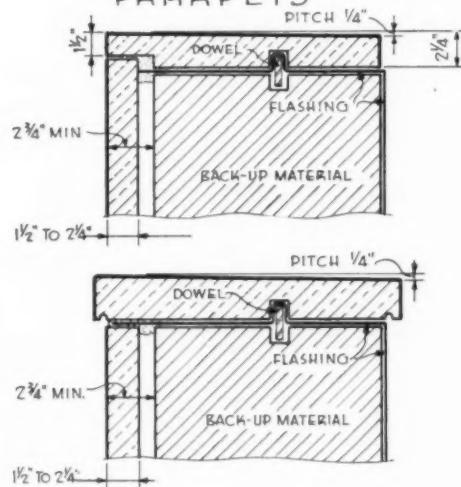
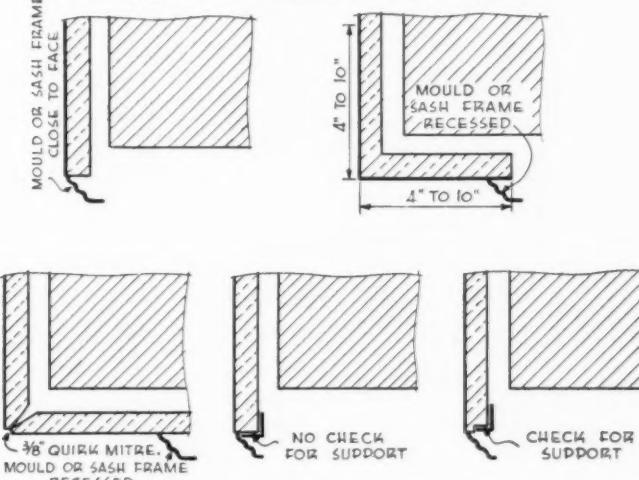
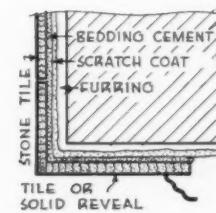
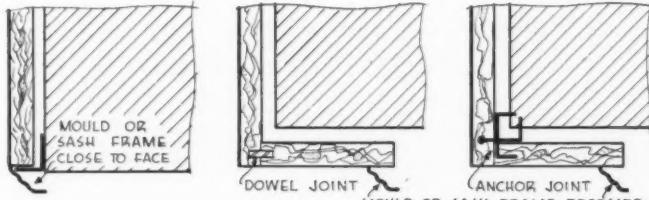
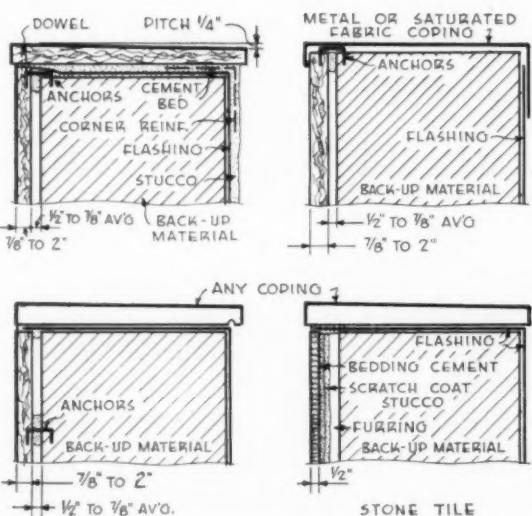
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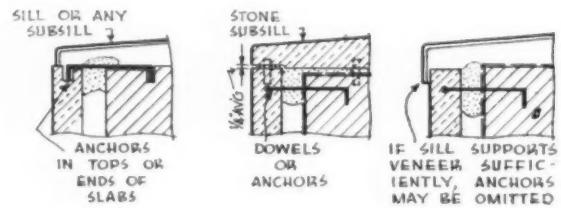
This Time-Saver Standards sheet contains data on use of thin stone veneer slabs. Standard methods as well as those which require a minimum of metal are shown. Data are intended for use as guides to designers rather than as specific solutions.

Since emphasis is placed on stonework details and anchoring, little space is given to methods of waterproofing, backing, etc. It is recommended that the designer consult manufacturers' literature for exact information on each product.

COPINGS
AND
PARAPETSSOFFITS FOR WINDOWS, ETC.
(JAMBS AND EXTERIOR ANGLES SIMILAR)
FOR METHODS OF ANCHORING SEE REVERSEHARD OR CRYSTALLINE STONES
SUCH AS GRANITERELATIVELY SOFT STONES
SUCH AS MARBLES, SOAPSTONES, ETC.
SCALE OF ALL DRAWINGS 1" = 1'-0"

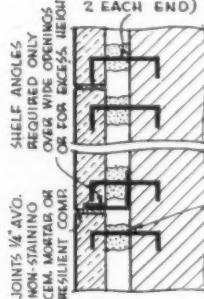
BUILDING FACINGS—1: Stone Veneers

HARD OR CRYSTALLINE STONES SUCH AS GRANITE



WINDOW SILLS

ANCHORS — 4 PER
SLAB (2 TOP,
2 BOTTOM; ON
2 EACH END)

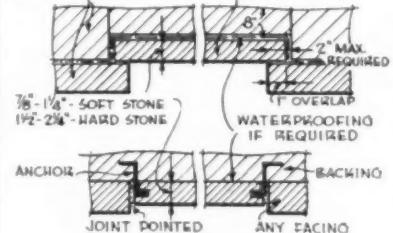


IN RESURFACING
EXISTING WORK
SET ANCHORS WITH PLASTER

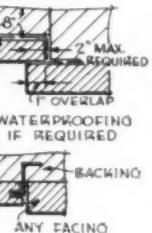


SPANDELS

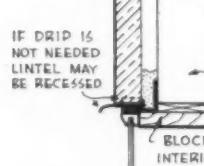
PLACE PIER FACING
AND BACKING FIRST



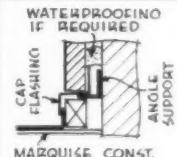
PLACE SPANDEL
FROM INSIDE



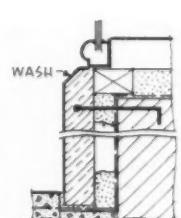
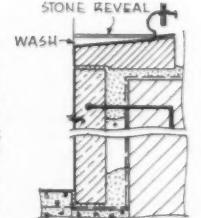
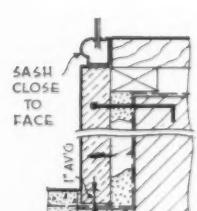
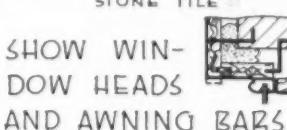
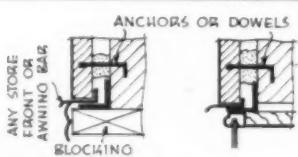
SPANDEL PLANS HARD OR SOFT STONES



SHOW WINDOW HEAD



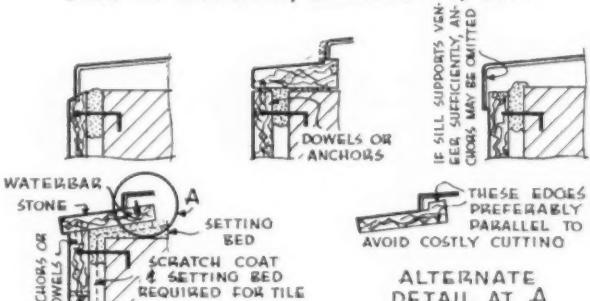
SHOW WINDOW HEADS AWNINGS, MARQUISES HARD OR SOFT STONES



BULKHEADS

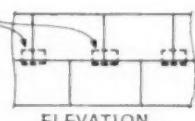
HARD OR CRYSTALLINE STONES SUCH AS GRANITE

RELATIVELY SOFT STONES SUCH AS MARBLES, SOAPSTONES, ETC.



ALTERNATE DETAIL AT A

EACH SHELF ANGLE
SHOULD SUPPORT 2
SLABS. ANGLES AND
ANCHORS REQUIRED
AT EACH STORY OR
APPROX. EVERY 10'-0"
TO 11'-0" OF HEIGHT
OR APPROX. EVERY
THIRD COURSE

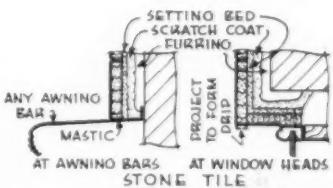


LUO SECURED
TO LINTEL
ALTERNATE METHOD
AT BOTTOM OF SPANDEL

SPLINE OR WATERBAR — IF
USED, WATERPROOFING BE-
HIND FACING MAY BE OMITTED

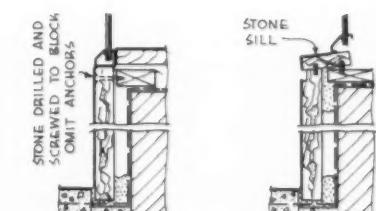


WATERPROOFING JOINTS SPANDELS



SHOW WIN- DOW HEADS AND AWNING BARS

SCALE OF ALL DRAWINGS APPROX. 1" = 1'-0"



BULKHEADS

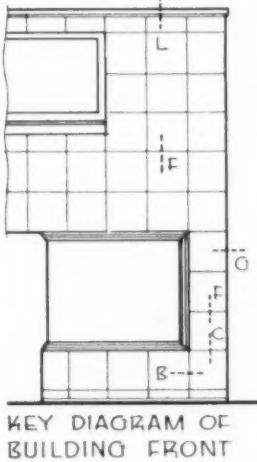
RELATIVELY SOFT STONES SUCH AS MARBLES, SOAPSTONES, ETC.

BUILDING FACINGS—2: Structural Glass

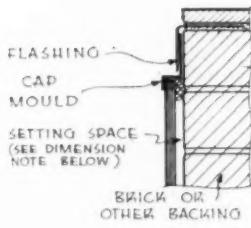
ARCHITECTURAL RECORD
TIME-SAVER STANDARDS
DECEMBER 1941

This Time-Saver Standards sheet contains data on use of structural glass veneers for exterior wall surfaces. Standard methods shown are based on requirements of the City of Chicago; in addition, details which are permissible under

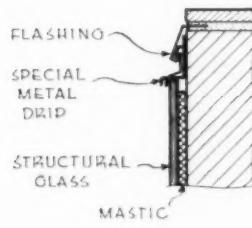
certain conditions and which may result in savings of critical materials, are shown. It is recommended that the designer consult manufacturers' literature for exact information on each product.



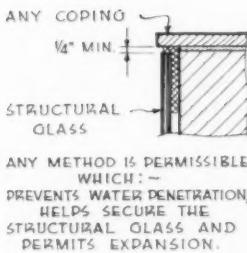
KEY DIAGRAM OF
BUILDING FRONT



FLASHING
CAP
MOULD
SETTING SPACE
(SEE DIMENSION
NOTE BELOW)
BRICK OR
OTHER BACKING



FLASHING
SPECIAL
METAL
Drip
STRUCTURAL
GLASS
MASTIC

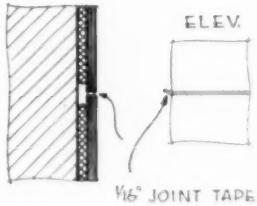


ANY COPING
1/4" MIN.
STRUCTURAL
GLASS
ANY METHOD IS PERMISSIBLE
WHICH:—
PREVENTS WATER PENETRATION,
HELPS SECURE THE
STRUCTURAL GLASS AND
PERMITS EXPANSION.

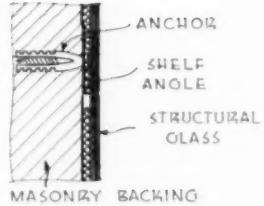
DETAILS AT "L"

COPINGS

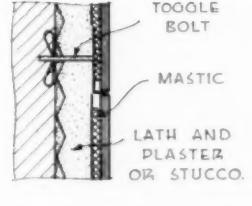
SCALE OF ALL DETAILS APPROXIMATELY 1/2" = 1'-0"



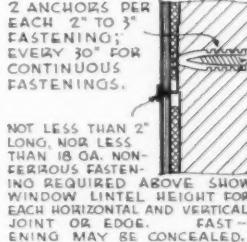
DETAIL AT "C"



ANCHOR
SHELF
ANGLE
STRUCTURAL
GLASS
MASONRY BACKING

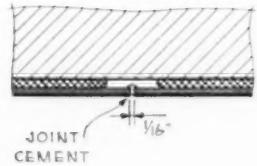


TOGGLE
BOLT
MASTIC
LATH AND
PLASTER
OR STUCCO.

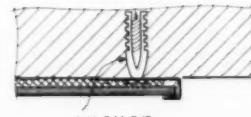


2 ANCHORS PER
EACH 2" TO 3"
FASTENING;
EVERY 30" FOR
CONTINUOUS
FASTENINGS.
NOT LESS THAN 2"
LONG, NOR LESS
THAN 18 GA. NON-
FERROUS FASTEN-
ING REQUIRED ABOVE
WINDOW LINTEL HEIGHT
FOR EACH HORIZONTAL AND VERTICAL
JOINT OR EDGE. FAST-
ENING MAY BE CONCEALED.

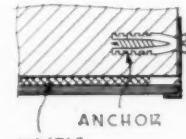
ALTERNATE DETAILS AT "E" HORIZONTAL JOINTS



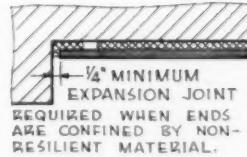
DETAIL AT "B"



ANCHOR



ANCHOR
MASTIC



1/4" MINIMUM
EXPANSION JOINT
REQUIRED WHEN ENDS
ARE CONFINED BY NON-
RESILIENT MATERIAL.

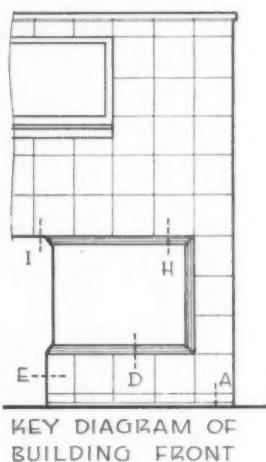
VERTICAL JOINTS

USEFUL
DIMENSIONS

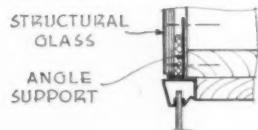
STRUCTURAL GLASS THICKNESSES OF 1/32", 7/16" AND 3/4"
REQUIRE 3/4", 7/8" AND 1 1/8" RESPECTIVELY FROM FINISH FACE TO ROUGH.

DETAILS AT "G" TERMINATIONS

BUILDING FACINGS—2: Structural Glass

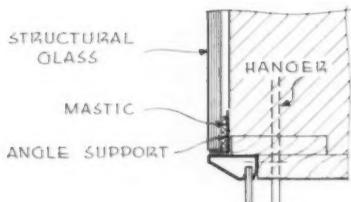


KEY DIAGRAM OF
BUILDING FRONT

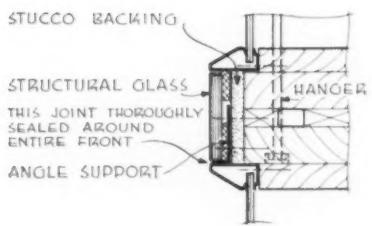


DETAIL AT "H"

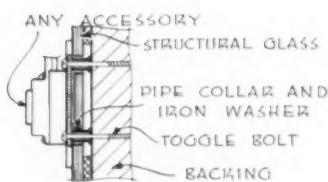
SHOW WINDOW HEADS



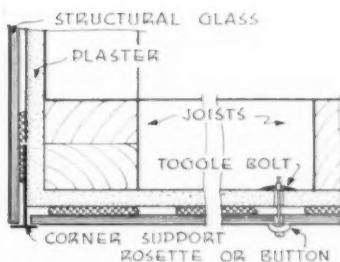
DETAIL AT "H"



DETAIL AT MULLION

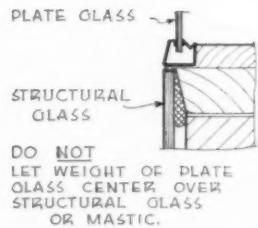


SIGNS OR
ACCESSORIES



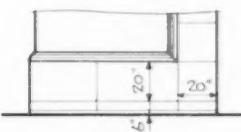
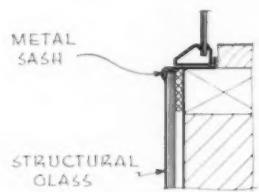
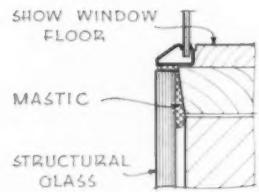
DETAIL AT "I"
VESTIBULE CEILING

SCALE OF ALL DETAILS APPROXIMATELY $1\frac{1}{2}'' = 1'-0''$



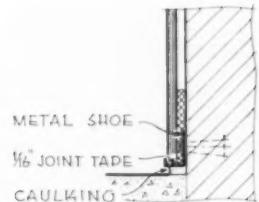
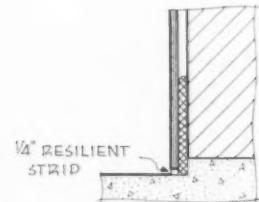
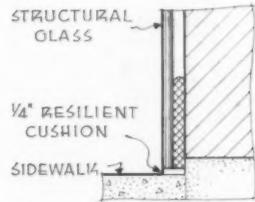
DO NOT
LET WEIGHT OF PLATE
GLASS CENTER OVER
STRUCTURAL GLASS
OR MASTIC.

DETAILS AT "D"
SHOW WINDOW SILLS



IF BULKHEAD IS OVER
26" HIGH, PROVIDE
AT LEAST ONE
HORIZONTAL JOINT

ELEVATION AT "E"



DETAILS "A" AT SIDEWALK LEVEL



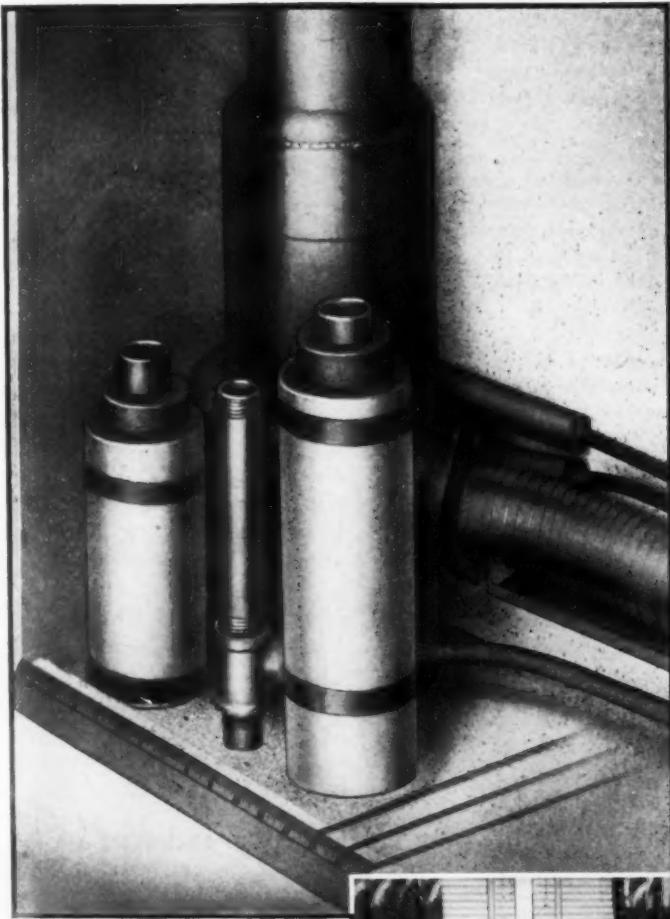
MITRES ARE PERMITTED
ONLY FOR VERY
WIDE (ALMOST 180°)
ANGLES

Announcing

CONDITIONED AIR

DISTRIBUTED THROUGH

CONDUITS



(*above*) Same space formerly required for heating pipes alone is now ample for all conduits necessary for year 'round air conditioning. Notice how the six-inch Conduit (*in corner*) reduces in diameter as it rises. The three pipes in the foreground carry water for both heating and cooling. Branch connections lead to Carrier Room Weathermasters.

(*Right*) Carrier Conduit Weathermaster installed in office for year 'round air conditioning. All parts are enclosed in cabinet. All connections concealed behind Carrier Metal Baseboard.



An Outstanding New Development in Air Conditioning

★ Up to 85% reduction in duct areas and resulting savings in rentable floor space . . . 20% to 30% reduction in capital costs . . . 15% to 25% savings in fuel . . . introduction of fresh, clean air into each room separately . . . reduction of building height without sacrificing ceiling heights . . . individual control of temperature in each room . . . no running parts in the occupied spaces—these are but the highlights of the sensational benefits which the new Carrier Conduit Weathermaster System brings to multi-room buildings—apartments, hotels, hospitals, office buildings.

★ The Carrier Conduit Weathermaster System is now proved in operation in a new building. This revolutionary development is now being adapted to bring modern utility to an existing multi-room building.

★ You may learn more about this development in a Brochure especially for architects and engineers. This Brochure covers the subject in detail—tells exactly to what type buildings it is most applicable, photographs of installations which are already operating, and other pertinent application data.

★ In order that you may be fully informed as quickly as possible, write or fill in the coupon below for a free copy of this important Brochure without delay.

Air Conditioning's First Name



CARRIER CORPORATION, SYRACUSE, N. Y.
"Weather Makers to the World" Desk L 28

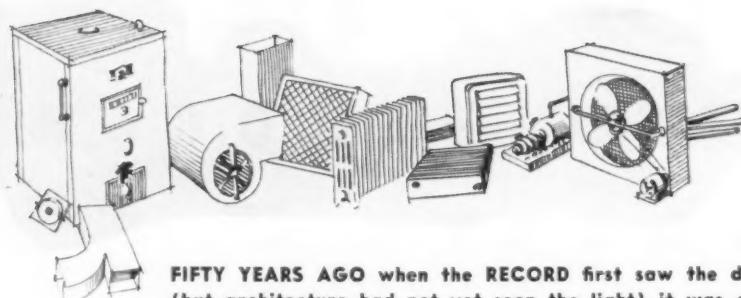
Without obligation, please send by return mail a free copy of the new Brochure entitled, "Carrier Conduit Weathermaster System for Multi-room Buildings."

Name _____

Address _____

City _____ State _____

ARCHITECTURE



FIFTY YEARS AGO when the RECORD first saw the dawn (but architecture had not yet seen the light) it was common practice for designers to "attach," with a naive flourish, the heating system to the interior of the building. Classic Revival or American Provincial—whatever the style—the radiator or register offered unblushing testimony that here was an unfortunate necessity, reluctantly included, that really didn't belong.

TODAY IT IS DIFFERENT. Inhibitions once brought about by style consciousness are cured. With new construction methods and better equipment that make heating and air conditioning a more exact science, the system is wedded to the structure. It is now planned as an integral function of the building's design.

TO ACHIEVE THIS is not a simple matter. Modern design practice, with the wealth of materials and equipment at its disposal, makes it necessary for the architect to assimilate a broader knowledge and shoulder greater responsibilities each year. Unfortunately, the facilities which might make this task easier are not always provided.

THE MANUFACTURER in this field has an enviable opportunity to provide the architect with the information he needs to do his job—but it should be no more and no less than he needs. The architect has no desire to fill the engineer's role, but he would like to keep abreast of developments. He also insists on being sufficiently informed to be able to select the best system for the problem at hand and provide the architectural and structural elements essential to its proper installation. The engineer and architect design the system in close collaboration—but to the architect goes the responsibility of coordinating and finally approving. His knowledge of the subject must therefore be sound and sufficient—not as complete as the engineer's, not as general as the layman's. It must be devised, in other words, just for him.

IN THE FINAL ANALYSIS, it is the manufacturer who is the real authority on the performance and physical aspects of his equipment. It is from him that much of the architect's information on heating and air conditioning must come.

AND doesn't the advertising section of his journal of professional practice suggest the ideal vehicle for bringing him this education?

—RONALD ALLWORK

ARCHITECTS OFFER

LAST MONTH practicing architects were asked what suggestions they could offer the manufacturer of heating or air conditioning equipment regarding his advertising. Their answers are to be found on these pages.

MAURICE R. SALO

THE heating and air conditioning manufacturers offer the most complete data on their equipment from the point of view of operation and installation; however, very often the determining factor is initial cost and cost of operating. I feel that comparative costs in these matters would help in the selection of heating and air conditioning equipment.

FRANCIS GEORGE DAVIDSON, AIA

EMPHASIZE features of equipment which produce the results the public expects from a good heating system, i.e., no drafts, adequate output, proper humidity, economy, carefree operation and maintenance.

WILLIAM F. DEKNATEL, AIA

ADVERTISERS should assume that architects have above-average technical knowledge and give them facts, not sales talks. Manufacturers of heating and air conditioning equipment could serve architects by stating soberly and clearly what they manufacture and what it is designed to perform, supplementing these announcements in the standard reference files with technical data as to dimensions, ca-

E MEETS ADVERTISING

S OFFER SUGGESTIONS TO HEATING AND AIR CONDITIONING EQUIPMENT MANUFACTURERS

ing archi-
t suggests
the man-
air con-
regarding
answers
se pages.

conditioning
most com-
ponent from
eration and
y often the
cial cost and
l that com-
atters would
heating and
nt.

SON, AIA
equipment
s the public
ting system,
put, prop-
refree oper-

IA
me that ar-
ge technical
n facts, not
s of heating
ment could
ing soberly
manufacture
to perform.
nouncements
e files with
ensions, ca-

FREDERICK H. KOCK, AIA

A SIMPLIFIED CHART (see right) listing the manufacturer's recommended types of equipment for various installations would be valuable as advertising copy.

When removed from the magazine and kept for ready reference, it would be a simple matter to ask for the proper catalog when the need arose. I would suggest some such chart, devoid of all unnecessary descriptive matters, sales talk, etc.

DONALD GRAHAM, AIA

LET HIM simplify and eliminate many technical details and tables in the ads that go to the lay public. They do not understand and will not read a mass of data. On the other hand, let him give fuller data in the ads he sends to engineers and architects. This means two sets of advertising media.

ALBERT MAYER, AIA

THERE ARE two points not now covered which interest me:

1. Noise of fan motor and of burner is usually excessive, especially in quiet country houses.
2. Flickering of lights as load comes on and off. This is not directly due to the manufacturer, but to the size of the utility's feeder cable. But something ought to be done.

"FIRM NAME HERE" LITERATURE IS WAITING FOR YOU WHEN YOU NEED IT: Firm Address Here				
Type Job	Heating Equipment	Send for Catalog	Conditioning Equipment	Send for Catalog
Unit Housing	Gas Fired Model A Oil Fired Model B Coal Fired Model C	No.100 No.101 No.103	Room Conditioners Model X	No.100X
Residential	Gravity: Gas, Model D Oil, Model E Coal, Model F Forced: Gas, Model G Etc.	Etc.	Plumbing Required: Model Y No Plumbing Req'd: Model Z	No.100Y No.100Z
Industrial	Etc.	Etc.	Etc.	Etc.
Commercial	Etc.	Etc.	Etc.	Etc.
Etc.				

MANUFACTURER'S CHART of heating equipment, recommended by Frederick H. Kock, AIA (left)

THE EDITORIAL APPROACH to advertising has recently been adopted by two big-time manufacturers of building products—Johns-Manville and Revere Copper and Brass Inc. Both are using general magazine space to "dramatize" building to the public, J-M through a series of articles by well-known writers, and Revere through presentation of "houses of tomorrow" from the drafting rooms of free-thinking designers. Architects will be interested in these two campaigns—first because they're interesting (witness Frazier Hunt's enthusiasm for factory construction in the Dec. 13 *Statepost* for J-M and the provocative prophecies of Norman Bel Geddes and Paul Nelson for Revere) and again because in this editorial approach—translated into the technicalities that architects and engineers use—is embodied the kind of advertising that **RECORD** readers want and need.



DESIGN for COMBAT

Let's glance over the shoulders of the men in the drafting rooms. One man designs gears, another valves, another bearings—and still another the foundation for ship ways. All dove-tailing in America's gigantic Defense Production. Many using A.W. Faber's WINNER Techno-TONE drawing pencils.

For WINNER Techno-TONE is a grit-free, smooth gliding marvel of precision grading and rich tone. A drawing pencil that coaxes creative ideas. In short, a drawing pencil bearing the famous A.W. Faber name, with 180 years of experience behind it. Order WINNER Techno-TONE from your dealer.

WINNER Techno-TONE DRAWING PENCIL

translates GRAY MATTER
into BLACK MATTER

Made in U.S.A. Polished rich green.
Packed in metal box. 2 for 25¢

WINNER Techno-TONE
17 Degrees—6B to 9H
"It has the A.W. FABER
name on it."

A.W. FABER Inc. NEWARK,
N.J.

*Meet Any Garage Specification
With A Stanley Hardware Set*

STANLEY "Roll-Up"
The Finest Garage Door Equipment Made!

Stanley "Roll-Up" Doors are supplied complete, both doors and hardware. Whether doors are small or large, action is so smooth and easy a child can open them. Heavy springs do the work, with a slight starting pull.

Since these doors travel straight up, the inside of the garage need be no longer than the car, and they open easily, even when snow-banked.

Stock sizes are 8' wide by 7' high, 8' wide by 7' 6" high, and 8' wide by 8' high, doors either 1 1/8" or 1 1/4" thickness. Also furnished 14', 15' or 16' wide, 1 1/4" thick, for two-car openings. Doors can be supplied on order to fit unusual openings.

YOUR GUIDE TO GOOD HARDWARE

Stanley Catalog No. 61, giving full details on the complete Stanley Hardware line, will prove handy in preparing your specifications. Write for your free copy. The Stanley Works, New Britain, Connecticut.

STANLEY
HARDWARE FOR CAREFREE DOORS

An important announcement to all users of structural steel



"In the interest of maximum steel mill production and the conservation of the available steel supply during the emergency period," the Office of Production Management, Washington, D. C., has requested the elimination of all non-essential structural steel shapes or sizes which are now offered.

This simplification of the range of structural

shapes becomes effective for production from February 1, 1942. A booklet listing the simplified range of Bethlehem Structural Shapes has been prepared and is available for your information and files. A copy suitable for insertion in Bethlehem Catalog S-51 will be sent to you on request. Address nearest district office of Bethlehem Steel Company.

BETHLEHEM STEEL COMPANY



NEWS OF MATERIALS AND EQUIPMENT

Plastic Covered Outlets

NEW high- and low-tension outlets encased in plastic were recently introduced for use with fiber conduits. The non-metallic surface is said to make these outlets an ideal accessory, especially when a fully insulated system is required. They withstand

breakdown tests of 4,500 volts. General Electric Co., Bridgeport, Conn.

Spring Balance—Weatherstrip Unit

A COMBINATION spring balance and weatherstrip unit is announced which, it is claimed, eliminates box frames,

sash weights, pulleys and cord, and, where economy in construction is of first importance, even the window frame. The balance is described as providing an air-sealed metal run for the sash which may be applied directly to framing studs. It consists of a vibration-absorbing spring, metal housing and side compression members acting as weatherstrips. Can also be furnished in a formed unit with weatherstrip integral. Holland Weatherstrip Co., Holland, Mich.

He's tough on toilet partitions!



TOILET partitions in schools, offices and factories must take a lot of punishment. Splashing water and strong cleaning chemicals. Knocks from mops. Latrine artists. Partitions are banged and scuffed all day long.

These are some of the reasons why many toilet partitions are made of Galvanized ARMCO PAINTGRIP Metal. This sheet offers the double protection of a galvanized coating and baked enamel over a smooth bonderized surface that grips and preserves the glossy finish.

Being light though strong, ARMCO PAINTGRIP partitions reduce dead-weight—and over-all construction costs. They are easily fumigated and will not absorb odors. With the galvanized coating under a durable baked-enamel finish, PAINTGRIP partitions are less likely to be affected by washroom cleaning and abuse.

Ask us for the names of manufacturers who will be glad to send you more information. The American Rolling Mill Company, 3151 Curtis Street, Middletown, Ohio.



ARMCO
PAINTGRIP METAL

Air Filter Unit

RELIEF for hay fever is offered in the form of a unit for window installations consisting of a spun glass filter in a metal cabinet with side panels which may be extended to fit an ordinary window frame. A three-bladed motor pulls air through louvres which can be directed toward the room at various angles. High efficiencies have been shown in tests. ILG Electric Ventilating Company, 2850 N. Crawford Ave., Chicago, Ill. (See figure 1.)



Figure 1

"Packaged" Heating System

FOR low-cost homes is announced a "heat package" consisting of furnace, duct system and domestic water heater. The duct system consists of a single distributing chamber which may be installed in a hall ceiling, basement or attic floor joists, and heat is discharged from the chamber through piping to registers. Shipped complete, ready for installation, except for round pipe and elbows. Evans Products Co., Detroit, Mich.

(continued on page 106)



**Extra hardness, heat-resistance, non-magnetism,
free-cutting and other qualities available
in INCO Nickel Alloys**

You doubtless know that Monel combines strength with excellent resistance to corrosion. But do you know that newer members of the INCO Nickel Alloy family combine varying degrees of strength with other useful properties? For example:

One of these metals is extra hard and non-galling; two are free-machining, two heat-treatable, one is non-magnetic, one especially adapted for high temperature service, while several make excellent spring materials for use under different conditions.

Knowing the individual characteristics of the INCO Nickel Alloys, will better enable you to meet the requirements of defense and other contracts. Write for the booklet, "Individualized INCO NICKEL ALLOYS." Address:

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street
New York, N. Y.

	INDIVIDUALIZED CHARACTERISTICS	AVERAGE MECHANICAL PROPERTIES					
		Condition	Tensile Strength 1000 psi.	Yield Strength 1000 psi.	Elongation in 2 in. per cent	Hardness Brinell 3000 kg.	Impact Strength Izod
MONEL* 2/3 Nickel 1/3 Copper	GENERAL PURPOSE ALLOY Corrosion Resistance, Strength, Hardness, Toughness. Attractive Silvery White Color.	Annealed Hot-rolled Cold-drawn Cold-rolled, hard-temper ..	75 90 100 110	35 50 80 100	40 35 25 5	125 150 190 240	105 110 95
"R" MONEL* Contains the addition of 4.5% sulfur	FREE CUTTING For High Speed Machining.	Hot-rolled Cold-drawn	85 90	45 75	35 25	145 180	96 99
"K" MONEL* Contains the addition of 2.75% Aluminum	EXTRA STRENGTH AND HARDNESS comparable to heat treated alloy steel. Heat Treatable. Non-magnetic.	Hot-rolled { As-rolled Heat-treated .. Cold-drawn { As-drawn ... Heat-treated ..	100 150 115 155	45 110 85 115	40 25 25 20	160 280 210 290	120+ 40 56 26
"KR" MONEL*	FREE CUTTING Extra Strength and Hardness. Heat Treatable. Non-magnetic.	Hot-rolled { As-rolled Heat-treated .. Cold-drawn { As-drawn ... Heat-treated ..	105 150 115 155	65 105 85 115	40 25 25 25	185 280 215 290	
"S" MONEL* Contains the addition of 4.5% silicon	EXTRA HARDNESS Non-galling.	Sand-cast { Annealed As-cast Heat-treated ..	90 130 130	70 100 100	3 2 2	275 320 350	
NICKEL 99.4% Nickel	CORROSION RESISTANCE Protection for Pure Products. Magnetic below 680° F. Good Electrical Conductivity.	Annealed Hot-rolled Cold-drawn Cold-rolled, hard-temper ..	70 75 95 105	20 25 70 95	40 40 25 5	100 110 170 210	120+ 120+ 120+ 120+
"Z" NICKEL* 98% Nickel	EXTRA STRENGTH AND HARDNESS Heat Treatable. Excellent Spring Properties. Good Electrical Conductivity. Magnetic.	Hot-rolled { As-rolled Heat-treated .. Cold-drawn { As-drawn ... Heat-treated ..	105 170 120 175	50 130 90 135	35 15 25 15	180 320 220 340	120+ 25 120+ 25
INCONEL* 80% Nickel 14% Chrome Balance-Iron	HEAT RESISTANCE Retains Strength. Resists Oxidation. High Corrosion Resistance.	Annealed Hot-rolled Cold-drawn Cold-rolled, hard-temper ..	85 100 115 135	35 60 90 110	45 35 20 5	150 180 200 260	120+ 110 85

*"MONEL" and other trade-marks which have an asterisk associated with them are trade-marks of The International Nickel Company, Inc.

INCO NICKEL ALLOYS

MONEL • "K" MONEL • "S" MONEL • "R" MONEL • "KR" MONEL • INCONEL • NICKEL • "Z" NICKEL

Sheet... Strip... Rod... Tubing... Wire... Castings

NEWS OF MATERIALS AND EQUIPMENT

(continued from page 104)

High-Power Concentrating Floodlight

DESIGNED to force brilliant high-bay illumination down to the work level in industrial plants, auditoriums and stores, especially those with high ceil-

ings or with traveling cranes or other obstructions, a new concentrating floodlight has been developed. The bulb is said to deliver a concentrated flood of light that cuts through distance, haze and smoke. The inside of the bulb is lined with polished

silver to form a reflector that cannot be dimmed, it is claimed, by dirt or fumes. 13 wattages. Birdseye Division, Wabash Appliance Corp., Brooklyn, N. Y.

Water Heater Has Enamelled Tank

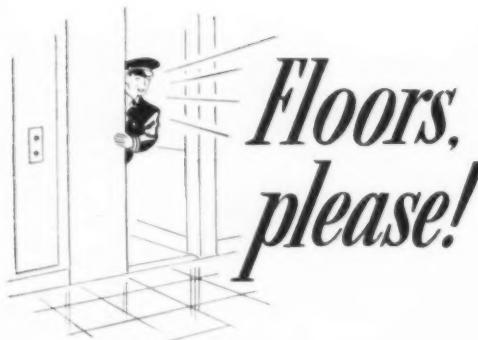
TO TAKE the place of copper and other non-ferrous water heaters, a new model is introduced having an iron porcelain-enamelled tank. Construction of this automatic storage heater is one-piece welded. 300-lb. test. Insulation is 1½-in. Fiberglas. Guaranteed for 20 years. 5 sizes, from 15 to 60 gals, capacity for natural or manufactured gas. Hotstream Heater Co., Cleveland, Ohio.

Non-Rising Pin

HERE is a butt pin that the manufacturer claims will not rise through action of the door, though it can be easily removed when desired. The non-rising feature is obtained by means of a split ring attached in a groove in the pin. When the pin attempts to rise the split ring comes in contact with the inside of the knuckle above the pocket. The Stanley Works, New Britain, Conn.

Chimes, Temperature, Humidity

THERMOMETER, humidity gauge and two-door chimes are included in an attractive brass-finished unit. Nutone Chimes, Inc., 3rd and Eggleston, Cincinnati, Ohio. (See figure 2.)



IN SPECIFYING flooring for areas in office buildings, architects base their decision on how a given material meets the requirements of the project.

Office building corridor floors should be long wearing, eye-appealing, inexpensive to maintain, safe under foot, and easy to repair in case of accidents or alterations.



Lobby—Cohn & Rosenberg, New York City

The TILE-TEX Company

Chicago Heights, Ill.
Eastern Sales Office: 101 Park Ave., New York



Office—Fairbanks-Morse, New York City

Office building tenant space requires floor surfaces that will do everything mentioned above and which possess in addition, ability to resist abuse from all types of office furniture and equipment.

Low first cost is, of course, an added virtue for any type of flooring. Investigate Tile-Tex and find how adequately it meets all office building floor requirements and how emphatically it possesses the virtue of low first cost.

See Sweet's Catalog, Page 11-64, for specification and design data, and call on our Design Department for helpful suggestions.

OUR constant objective is to furnish the architect with an honest, steadily improved product that will enable him to design architecturally correct floors which can be installed and maintained properly at minimum cost.

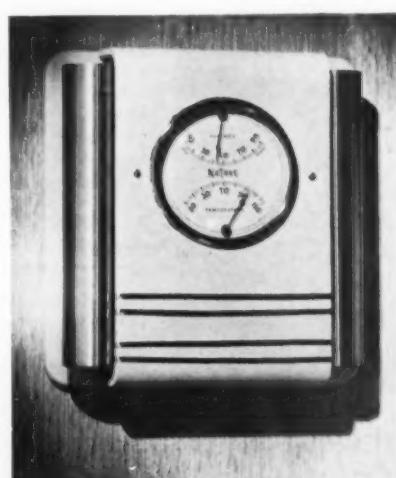


Figure 2

★ Heat for DEFENSE HOUSING ★

Meet government defense housing specifications with these

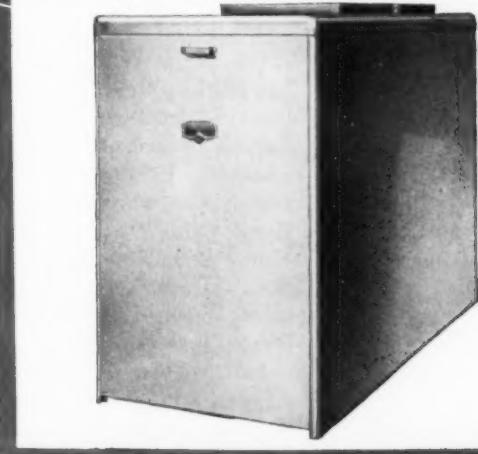
WARM AIR FURNACE 80 FWA

For hand firing with coal. Automatically controlled blower provides forced circulation of warmed air. Designed in accordance with the specifications set up by the Procurement Division of the U. S. Treasury Department, meeting the requirements of FWA, USHA, PBA and FSA for Defense Housing. Fitzgibbons "Weldseal" construction positively insures against leakage of flue gases.



FITZGIBBONS 65 DA—80 DA—100 DA

A distinctly small home air conditioner which has every Fitzgibbons advantage of welded steel construction, and extremely low fuel consumption. Warms, humidifies, filters and circulates the air. Quiet in operation, beautiful in appearance.



FITZGIBBONS
units for all conditions-
all fuels - all needs

FITZGIBBONS 400 Series STEEL BOILER

The choice of architects and builders wherever low cost heating in small homes is needed. Beautifully adapted to defense housing using radiator heat with oil, gas or stoker firing, or with coal hand firing. Built-in copper coil provides domestic hot water. All the advantages of Fitzgibbons steel boiler construction in an attractively jacketed unit priced for the field it serves.



Warm air furnace, boiler, air conditioner — if it's a Fitzgibbons it is quickly and easily installed, priced to fit its market, exceptionally low in fuel consumption. Get the facts — mail the coupon.



Fitzgibbons Boiler Company, Inc.

101 PARK AVENUE, NEW YORK, N. Y.

Send me details on Fitzgibbons defense housing heating unit.

80 FWA

400 SERIES

65—80—100DA

AR-12

Name.....

Address.....

State.....

NEWS FROM WASHINGTON

(continued from page 22)

be initiated by the defense workers themselves and the cooperatives may employ their own architects.

Of possible sideline interest to architects interested in design of furniture and equipment is the ban on

metal for office furniture which, being in heavy demand, must continue in production with wood as a substitute.

Bubble houses

A novel means of constructing

igloo-type houses has been demonstrated near Washington with the aid of the Defense Homes Corporation. These so-called bubble houses are rapidly erected by spraying first a layer of plaster and then a layer of cement on a hemispherical balloon which can be deflated, removed, and used again after the cement is hard. Metal sash windows are added. Rooms can be squared off by adding closets and built-in features. Several of these cement domes may be joined by connecting units to make a one-story house with the desired number of rooms.

Federal Loan Administrator Jesse Jones has visited the project and has been posed squirting concrete out of a hose onto one of the houses. The financing of further units on an experimental scale is thought possible.

USHA

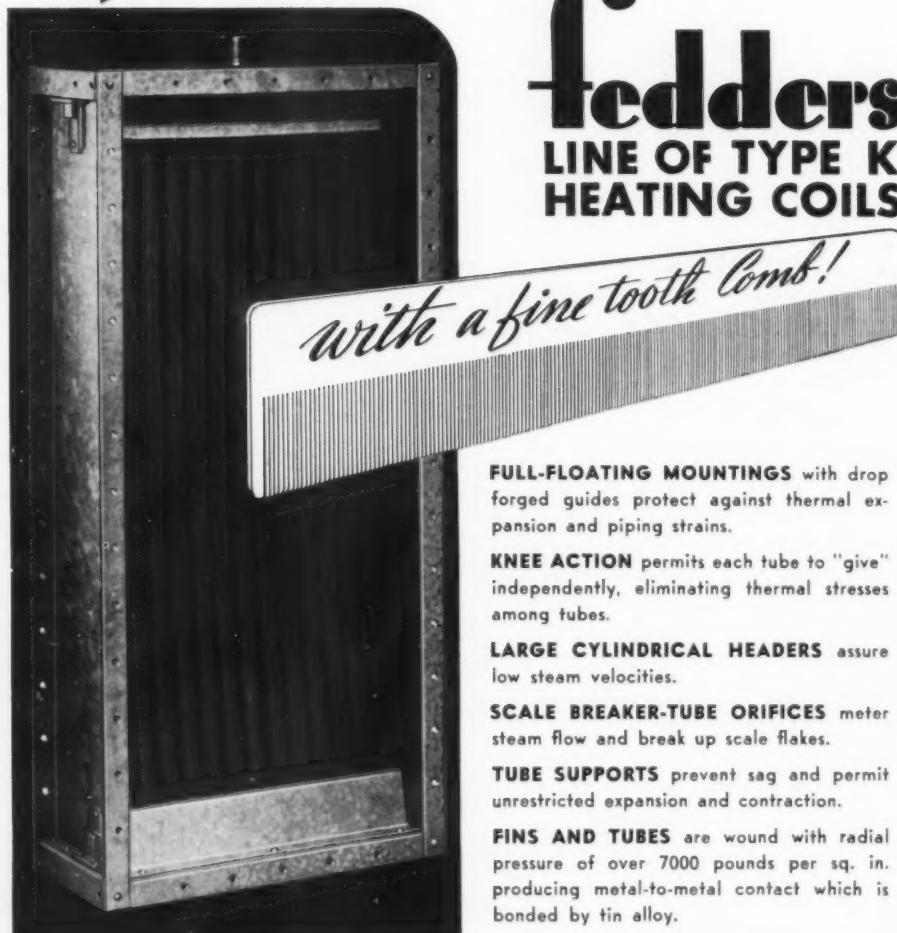
Celebrating its fourth anniversary, the United States Housing Authority announces that it has achieved an average construction cost of \$2,789 for 28,175 defense homes, well under the \$3,500 maximum set by Congress under the Lanham Act.

USHA has adopted a new policy of purchasing from small manufacturers of brick, tile, millwork, small metal parts, and similar building materials in cooperation with the national policy of spreading work and speeding deliveries.

Congressional investigation

A special subcommittee of the House Military Affairs Committee has filed its first report on the military construction program and the Committee recently has granted an additional \$25,000 to continue its investigations. The finding was that the Construction Division did a magnificent job in providing accommodations for 1,230,000 men by June 30, nearly meeting the quota of 1,274,000 on that date.

Lack of planning, however, led to staggering costs, the report stated. Numerous corrective measures were outlined. The necessity of cost-plus-fixed-fee contracts was conceded but some of the larger contracts are now being opened to bids on the lump sum basis.



Also Manufacturers of Cooling Coils, Air Conditioning Units, Unit Coolers, Unit Heaters and Other Associated Products.

FEDDERS MANUFACTURING COMPANY, INC.
Air Conditioning Division

93 Tonawanda Street

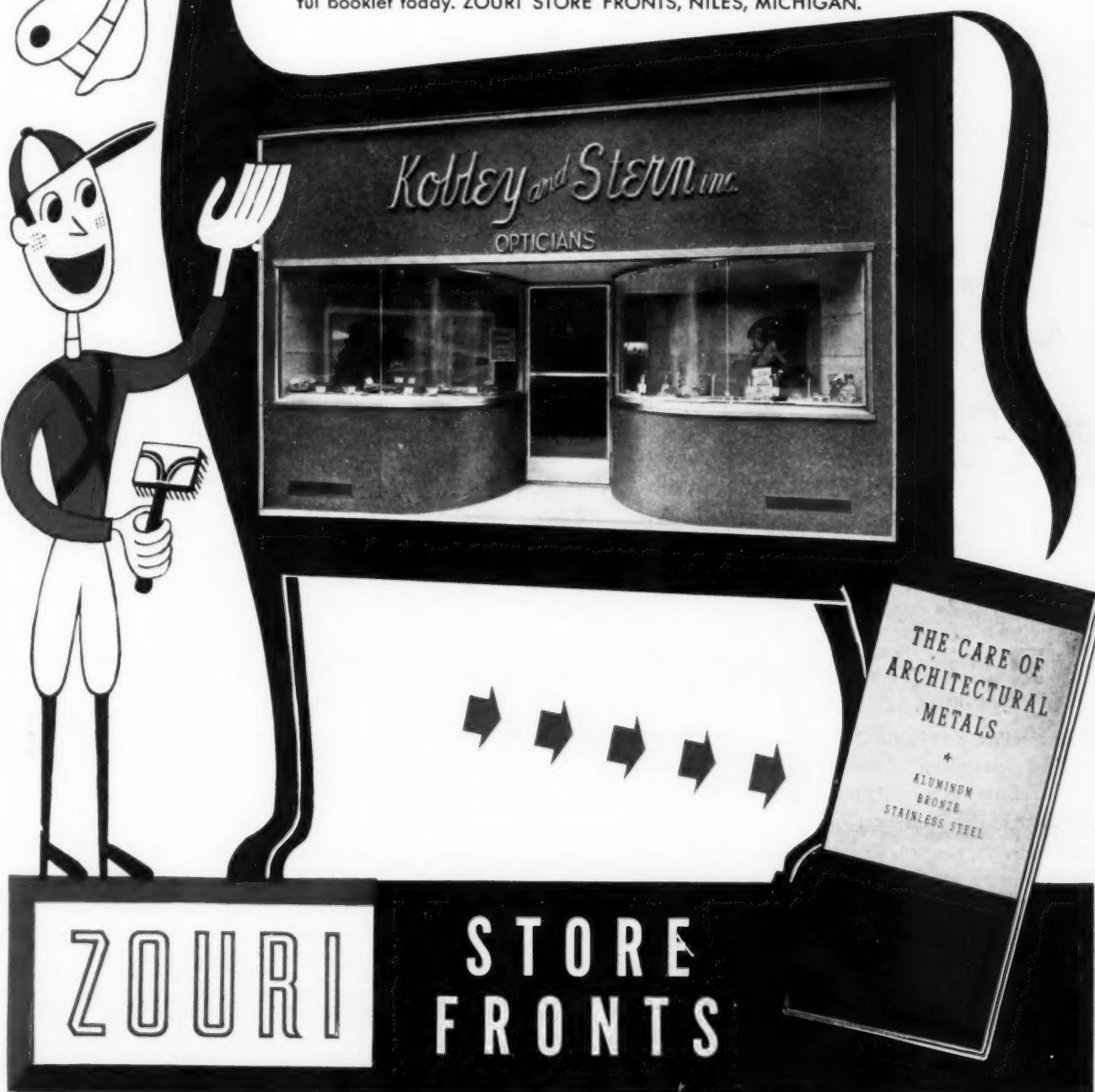
Buffalo, N. Y.

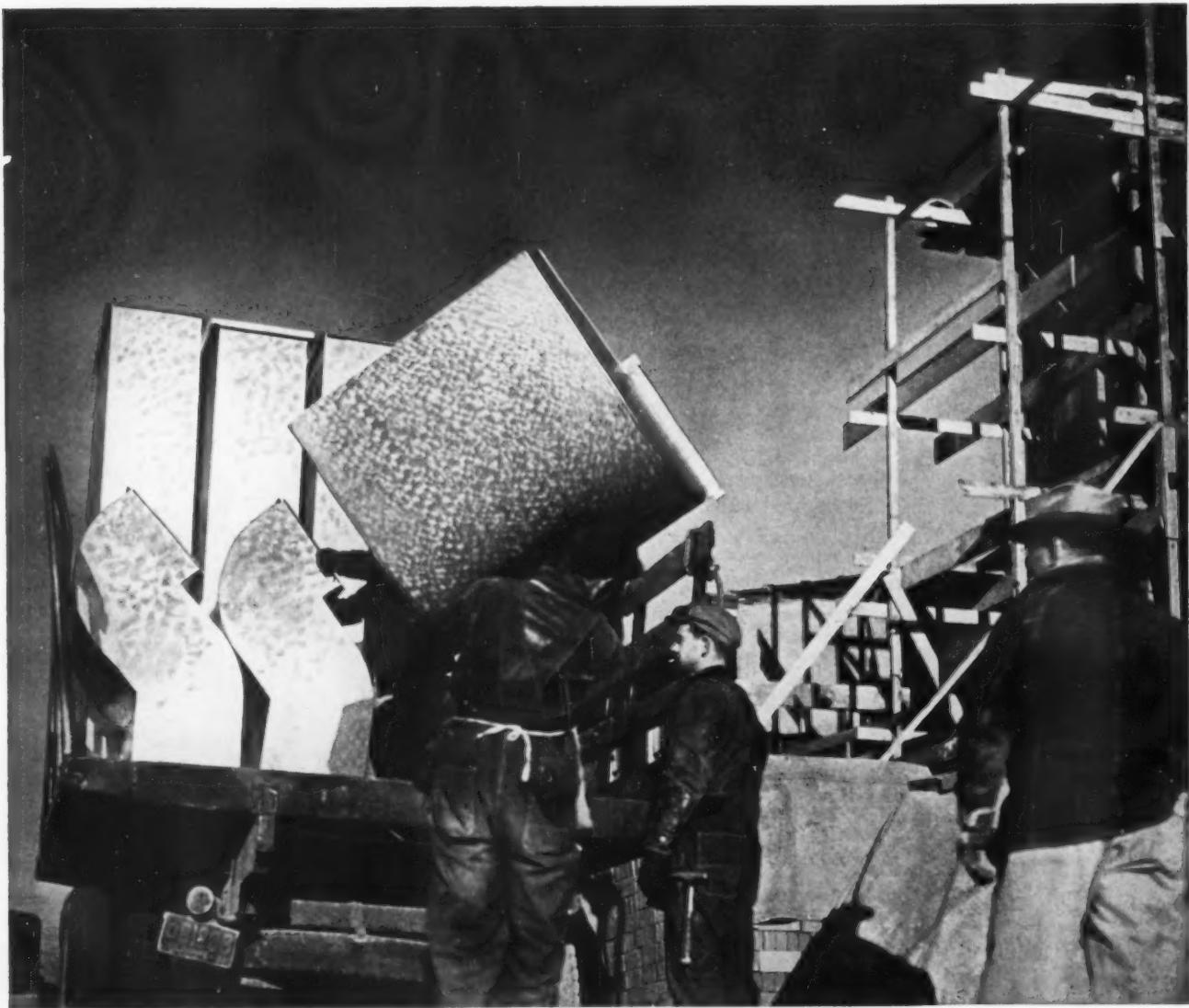
How to take proper care of Store Front Metals

ARCHITECTS AND BUILDERS are often asked about the cleaning and protection of metal finishes, the restoration of neglected finishes, the use of lacquers, and of various metal cleaning products.

To serve as a guide in such cases, ZOURI has prepared a booklet entitled "THE CARE OF ARCHITECTURAL METALS," based on many years of practical experience in the field. It tells what to do, and what to avoid, how to preserve the original beauty of the various rustless metals—aluminum, bronze, and stainless steel.

You can be of tremendous service to the merchants whose store fronts you create, by stressing the importance of the proper care of metal. Write for your copy of this useful booklet today. ZOURI STORE FRONTS, NILES, MICHIGAN.





**You plan for the future
when you specify
Beth-Cu-Loy Galvanized Steel Sheets**

The specification of Beth-Cu-Loy Sheets for all ductwork is a logical choice when you plan for permanence in any structure. These sheets are specially made to withstand long-continued attack by corrosive agents.

Externally, they are armored against rust by a tight, uniform coating of brightly spangled zinc. Reinforcing this primary line of defense is the composition of the steel itself with its copper content of from 0.20 to 0.30 per cent. Ex-

haustive tests by the American Society for Testing Materials have conclusively proved that sheets of this analysis outlast unalloyed sheets by more than two to one.

The additional cost of Beth-Cu-Loy is only a few cents more per sheet, amounting to a few dollars on an entire installation. From this small investment your clients reap major dividends in longer duct-life and trouble-free heating and ventilating service. For ducts that will last, specify Beth-Cu-Loy.

BETHLEHEM STEEL COMPANY

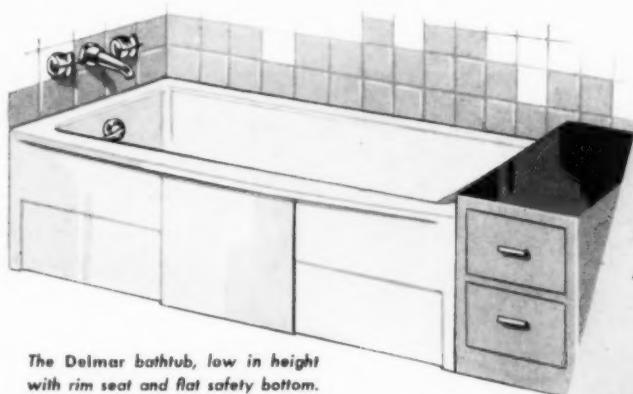


Duraclay

DEVELOPED FOR HOSPITALS NOW AVAILABLE FOR HOME PLUMBING

Hospitals demand the maximum from plumbing equipment. Scalding hot water is poured into sinks one minute—ice bags emptied the next. Acids, medicines, alkalies—hospital fixtures must withstand all these and above all, must endure the constant scrubbing and cleaning that sanitation demands.

Duraclay was developed to meet the unusual conditions in the hospital field. Its ability to meet them also makes Duraclay ideal for home plumbing. Being a glazed earthenware product, its use also contributes to the cause of National Defense by freeing metals for other purposes. Specify bathtubs, sinks, and laundry tubs of Duraclay in houses that you plan for '42.



The Delmar bathtub, low in height with rim seat and flat safety bottom.



Everbrite laundry tub of gleaming Duraclay.



The Chateau sink with drainboard and single basin, has swinging spout and retractable spray.

Also available is the Chateau Sink with two generous sink compartments but without drainboard.



CRANE

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

CRANE CO., GENERAL OFFICES:
836 S. MICHIGAN AVE., CHICAGO
VALVES • FITTINGS • PIPE
PLUMBING • HEATING • PUMPS

Seven important services protected with BYERS WROUGHT IRON

Public buildings have long been a proving ground for wrought iron's ability to minimize repairs and maintenance. A customs house got 73 years of service out of a wrought iron heating system. In a mid-western hospital, hot and cold water lines of GWI were still in service, after 81 years. In an eastern government building, fire, soil, waste, vent and leader lines of wrought iron were found to be in excellent condition after well over 40 years of service. Today, when the cost of future repairs and the ability to make them are both unpredictable quantities, records like this take on even greater significance.

In the Criminal Courts Building and Jail recently completed in New York City, the architects and engineers made good use of corrosion-resisting wrought iron. It was specified for all soil, waste, vent and leader lines in the building

NEW CRIMINAL COURTS BUILDING AND JAIL

New York, New York

CHARLES B. MEYERS and
HARVEY WILEY CORBETT,
Associate Architects

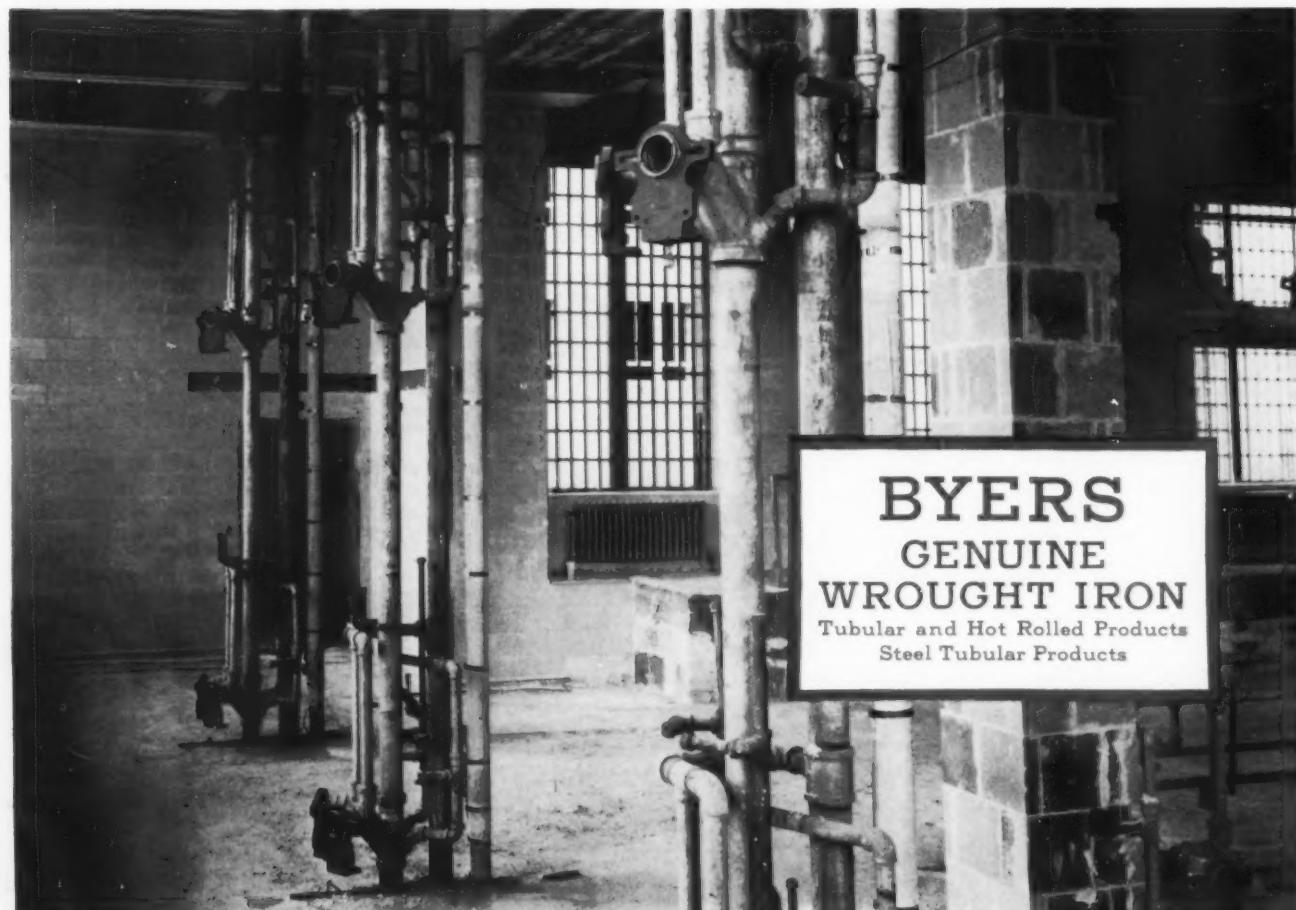
SYSKA & HENNESSEY

Consulting Engineers. Design and Construction
under the supervision of the Department of
Public Works, City of New York, Irving V. A.
Huie, Commissioner.

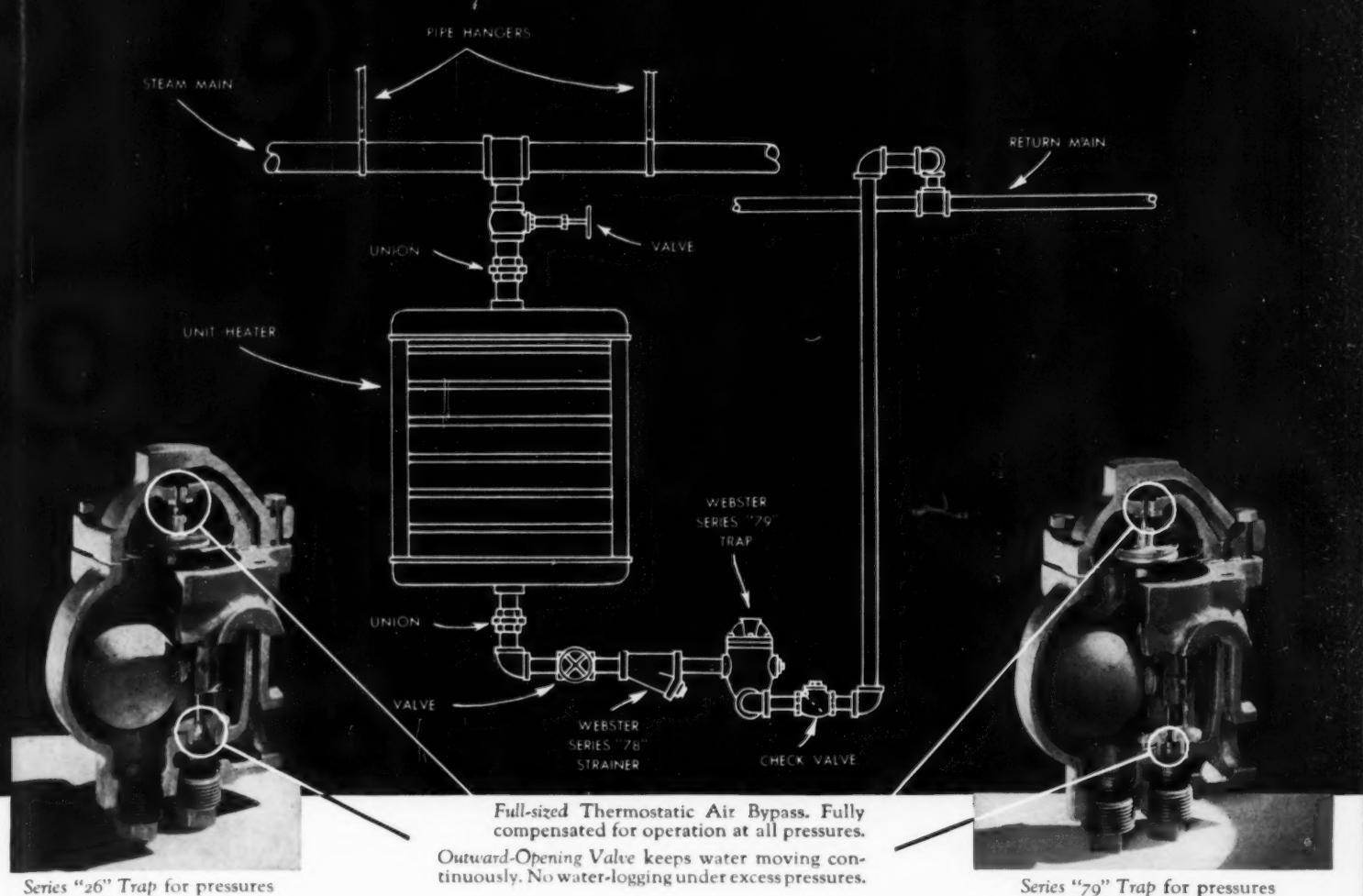
and basement; chilled water lines in the air conditioning system; heating returns and connections; and all steam supply lines, except in the basement.

Our Engineering Service Department can help you simplify the job of writing specifications. We have authentic records of wrought iron's performance in similar applications, and under similar conditions, which provide the safest and most dependable guide. Our bulletin, "Wrought Iron for Piping Systems," will show you a few of the many places where wrought iron is successfully serving. Would you like a copy?

A. M. Byers Co., Pittsburgh, Pa.
Established 1864. Boston, New
York, Philadelphia, Washington,
Chicago, St. Louis, Houston, Seattle,
San Francisco.



CORROSION COSTS YOU MORE THAN WROUGHT IRON



-ideal for Unit Heaters

There is nothing intermittent in the operation of Webster Combination Float and Thermostatic Traps. . . They provide continuous draining. The float-controlled outward opening valve stays open as long as there is water present. Stepping up the pressure results in quicker heating up.

Then, consider overload capacity. When you have steam coming into a cold unit heater with a fan blasting cold air across it, the trap must handle a tremendous volume of condensation for a short time. Under this condition the generous thermostatic bypass of the Webster Combination Float and Thermostatic Trap plays an extra part . . . handling a substantial volume of condensation and only closing when the trap body is finally filled with saturated steam.

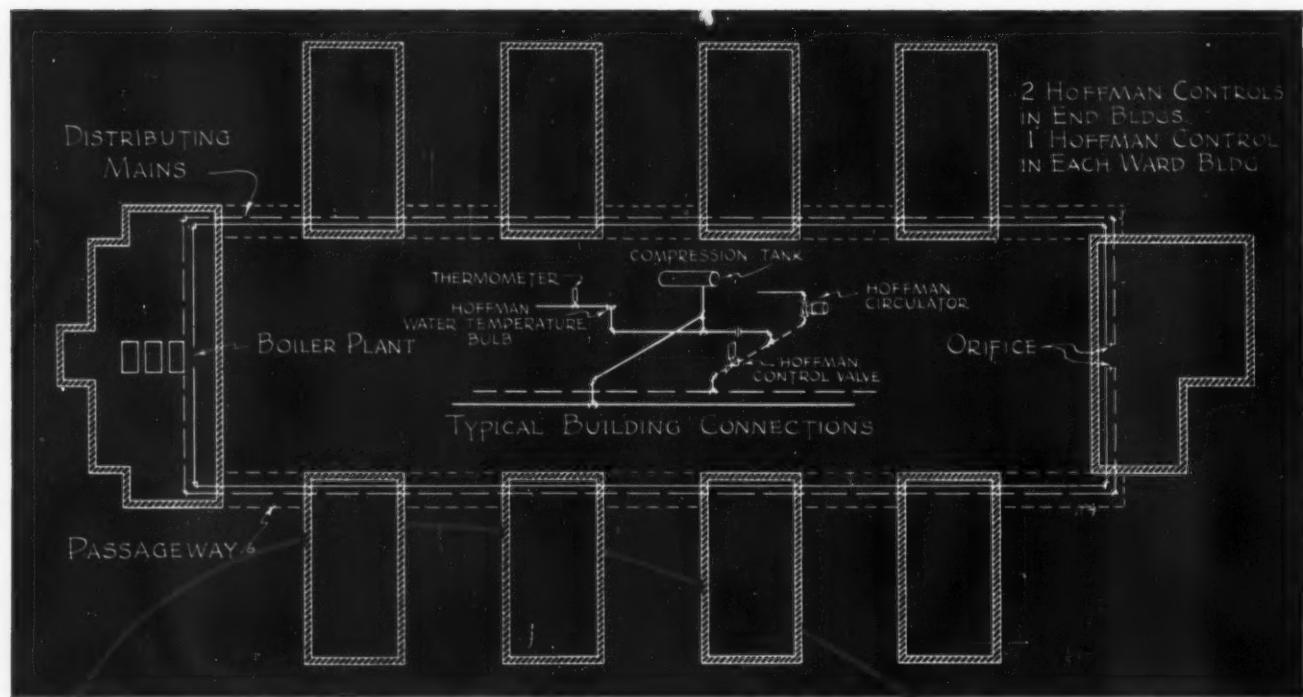
Air binding of unit heaters is unknown with Webster Combination Float and Thermostatic Traps. The full-sized thermostatic bypass insures continuous and immediate discharge of all the air and non-condensable gases that pass into the trap. The thermostatic element is no snap-action after-thought. It has the same capacity as the famous standard $\frac{1}{2}$ " Webster Thermostatic Trap.

There are a score of other advantages . . . You will find them covered in detail in our catalog. But, try one on your next unit heater application. You'll be surprised and pleased. Pretty good deliveries, too—everything considered.

WARREN WEBSTER & COMPANY, CAMDEN, N. J.
Pioneers of the Vacuum System of Steam Heating : : Est. 1888
Representatives in 65 principal Cities : : Darling Bros., Ltd., Montreal, Canada

See our exhibit at the 7th International Heating and Ventilating Exposition, Commercial Museum, Philadelphia, Pa., January 26-30, 1942.

-since 1888
Webster
Systems of
Steam Heating

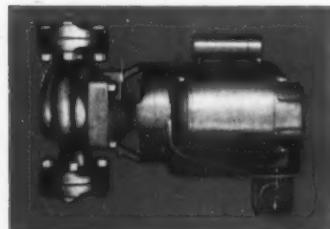


CONTINUOUSLY CIRCULATED HOT WATER

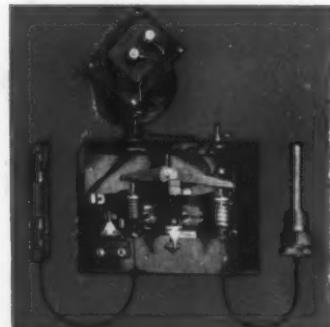
Wins heating contract in Defense Hospital!



Hoffman Control Valve



Hoffman Circulator



Hoffman Temperature Controller

The above diagram shows a typical application of Hoffman Hot Water Controlled Heat—today's most advanced method of distributing heat in accordance with the weather. In this hospital, the temperature in ten detached buildings is kept at a *constant degree* by Hoffman control units.

Hoffman Hot Water Controlled Heat combines *continuous circulation* with an outdoor temperature controlling device which effects a constant balance between heat loss and heat supply. Heat is supplied to the radiators on a gradually ascending or descending temperature scale—never in bursts of high temperature water.

This sensitive modulation of the heat supply confers two substantial benefits . . . the comfort of a uniform temperature and the economy resulting from elimination of over-heating. In addition, continuous forced circulation permits a *material reduction in the size of radiators, piping, boilers and firing units*.

Any automatically fired hot water boiler can be equipped with the units of Hoffman Hot Water Controlled Heat. Write today for booklets which give complete design and operating information.

HOFFMAN SPECIALTY COMPANY, Dept. AR-12, Indianapolis, Indiana

HOFFMAN
Hot Water
CONTROLLED HEAT



Hoffman Hot Water and Steam Specialties are sold everywhere by leading wholesalers of Heating and Plumbing equipment.





A tremendous trifle trebles power cable life . . .

An achievement of Anaconda research benefiting
both American Industry and Defense

IT IS Anaconda's new construction known as Type CB*. It was born in the Anaconda laboratories when an engineer applied the principle of conditioning oil by the introduction of carbon black, in a series of experiments then being carried on.

This principle, when applied to paper-insulated oil-impregnated cable, more than trebled the life of the cable under accelerated aging tests.

The resourceful research that made this vast improvement in power cable continues unabated by the emergency.

In fact, daily it strives to produce better wires and cables not only for all-important defense purposes, but also for industry at large. And although the latter may be delayed in obtaining new and improved products, when peace comes these products will be ready to go to work in the constructive cause of greater industrial progress.

41376

ANACONDA WIRE & CABLE COMPANY
General Offices: 25 Broadway, New York City
Chicago Office: 20 North Wacker Drive
Subsidiary of Anaconda Copper Mining Company
Sales Offices in Principal Cities



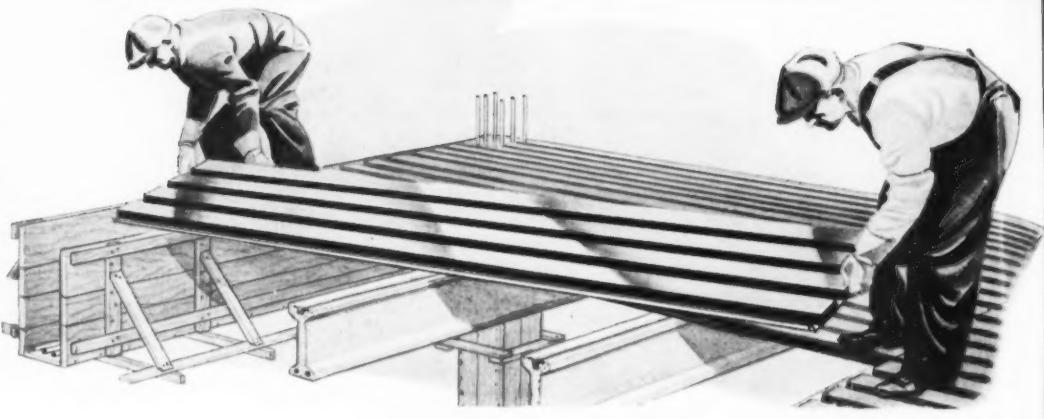
This familiar trademark
Identifies Anaconda
products. It symbol-
izes the best efforts
of man and science.

* Reg. U. S. Pat. Off.

ELECTRICAL WIRES AND CABLES OF COPPER ARE THE LIFE LINES OF OUR NATION

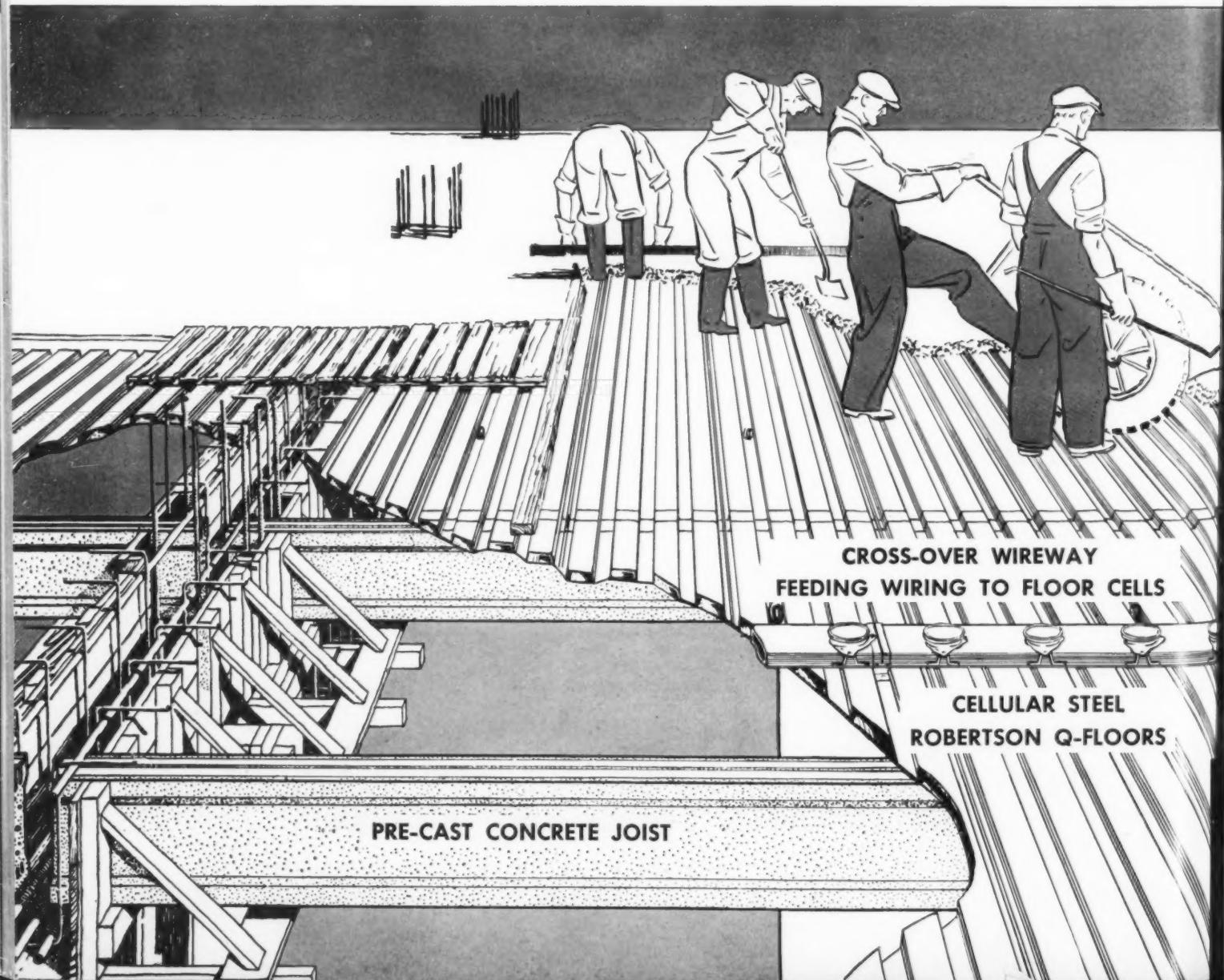
ANACONDA WIRE AND CABLE

A 32-square foot unit of Q-Floor can be laid in 30 seconds. It is placed directly on steel beams, masonry walls or precast concrete joists. On the latter it is welded to bearing angles. These units immediately become safe, solid platforms upon which all building trades, masons, plasterers, plumbers, electricians and others, can work. 20% to 30% building time can be saved by the use of Q-Floors. Quicker completion of the job and quicker occupancy are assured.



NOW QUICK-IN CAN BE APPLIED TO A REINFORCED

SHOWING METHOD OF POURING CONCRETE FOR COLUMNS, GIRDERS, SPANDRELS AND



FLASH!

50 STENOGRAPHERS KISS ARCHITECT AMES



THESE ladies are showing their appreciation to Architect Ames. Did he take them all out to lunch? No . . . but he designed an office building in which it is really pleasant for them to work. Noise used to fray their nerves, induce fatigue, cause them to make troublesome errors. Now, Architect Ames has reduced noise to a minimum. How? With sound-absorbing ceilings of Armstrong's Cushiontone.

Cushiontone—the new, low-cost, perforated fibreboard in tile form—has a noise reduction coefficient as high as 75%. Unlike some acoustical materials, Armstrong's Cushiontone does not tend to absorb dust and dirt. It can even be re-

Painted, when necessary, without affecting its sound-absorbing efficiency. The attractive ivory coloring blends harmoniously with any decorative treatment. And because Cushiontone reflects light efficiently (73%), the cost of adequate illumination can be kept at a minimum. This new ceiling material also is

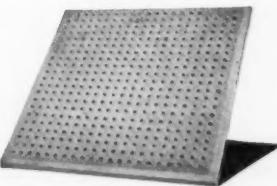
effective insulation against heat and cold, helping to keep rooms comfortable and healthful all year round.

Write today for a sample and a copy of the new data sheet on Cushiontone. Armstrong Cork Company, Building Materials Division, 1245 State Street, Lancaster, Pennsylvania.



ARMSTRONG'S CUSHIONTONE

Made by the makers of Armstrong's Corkoustic



NO. 9

ALUMINUM, DEFENSE, AND YOU



SIX MORE PLANTS IN FIVE STATES ON THE WAY

DEFENSE PLANT CORPORATION OWNS THEM. We've been designated to build them . . . fast.

Actually, when the names went on the dotted lines of the contract on August 19, we had already placed more than \$16,000,000 worth of orders for some of the equipment and materials it takes longest to make and get.

FIVE OF THESE PLANTS will smelt aluminum. Their combined capacity is planned for more than 500,000,000 pounds a year, which is greater than the nation's entire production of aluminum in 1940. Locations: Massena, N. Y., Spokane, Wash., Troutdale, Ore., Los Angeles, and in the State of Arkansas.

The sixth plant will refine alumina from bauxite. Its billion-pounds-a-year capacity adds 58% to the nation's alumina capacity. It will be located at Bauxite, Arkansas.

HOW GOES CONSTRUCTION? At this writing, as fast as title is secured to the sites, contracts are being let for grading and foundations so as to be ready for the structural steel, which is coming as rapidly as it can be gotten.

What is more important, the aluminum plants are scheduled to deliver ingot by the summer of 1942; the refining plant to deliver alumina in early summer, 1942.

WE'VE ASSIGNED a large staff of men full time to headquarters engineering, purchasing, and accounting on this government building job.

We're sending competent and experienced management men out on these jobs as superintendents and other staff executives on construction, and for subsequent operation of such of these plants as we are designated to operate.

EVERY KNOWN IMPROVEMENT in design and construction and equipment is being incorporated in these plants. We intend that every dollar that will be spent shall be the best dollar's worth that experience can build. We do not make one cent of profit from this assigned job of construction.

We think we know how to get the government value-received for its money, because we are completing the expenditure of more than \$200,000,000 of our own money in an expansion program which started after the beginning of the present war. Some of this expenditure is in new alumina and aluminum plants which will bring our own Alcoa capacity up to more than 700,000,000 pounds a year. The remainder is in tremendous expansion of facilities for fabricating every form of aluminum.

DEFENSE, GENTLEMEN, is getting its aluminum.

ALUMINUM COMPANY OF AMERICA



THE MIRACLE OF DEFENSE CONSTRUCTION

by Frazier Hunt



FOUNDATIONS FIRST. Before the airplane hangar (right) could go up, the hard-working bulldozer (above) had to dig up and level out the foundation. The bulldozer, with its tractor tread and colossal roar, is the building industry's private "tank."



AMONG THE UNSUNG HEROES of America are the "bulldozers"—those giant machines which, like faith, can move mountains.

The whole story of American preparedness starts with those snorting monsters and with men with blueprints and steam shovels, cement mixers, pile drivers, and the thousand and one other tools that are used on any kind of a building job.

Because bombers don't grow on trees. And tanks don't bloom on rose bushes. And you don't dig TNT out of the ground as you do potatoes. All those weapons are made in great factories, giant plants—in buildings that have to be planned by engineers and architects, and built by carpenters, riveters, welders and roofers, working from sunup to sundown.

Before the tank, before the bomber, before the army, had to come the bulldozer-operators, the masons, the steel workers, the electricians, the plumbers, the painters and the whole construction gang . . . And what an almost inconceivable number of buildings are needed for National Defense! Around 1400 separate housing units in an average cantonment; close to a thousand separate buildings in a powder factory; hundreds of sheds and storage bins at a Navy Yard; houses for the workers near many new plants—ground to be cleared, streets to be laid out, roads built, water mains installed, whole cities built from the ground up. What is the construction business? Brother, it's everything you don't see—multiplied by ten! You see the tank on the ground or the plane up in the air, but if the construction industry hadn't done its job, there wouldn't be any tank and there wouldn't be any plane, either.

To realize how the building industry really

has performed miracles, you must realize that this industry had to start from scratch. Particularly was this true of those architects and large construction companies which, during the great American building era of the twenties, had sent beautiful edifices of steel, stone and cement soaring high into the sky. These builders of great new cities, of office buildings, of mammoth factories, of power plants, of bridges and transportation arteries that were the wonder of the world—these builders and the architects, designers and engineers had faced a famine since 1930. The genius was there. The will to build was there. But only through digging deep into their bank accounts had they been able to keep even a skeleton organization together. Only the courage born of free enterprise could have sustained them. About all they had left was one shirt to their backs . . . Yet these same men are performing the miracle of defense construction for America today.

These men might well have said, "Give us a year to get ready. Our staffs are scattered, our equipment rusty." But there wasn't any year. **THE TIME WAS NOW!**

The Building Materials Dealer

It wasn't only the big boys who rolled up their sleeves and went to work, either. The local building industry responded, too. The building materials dealers, many hard hit by the depression, instantly made their services available for National Defense housing and other construction. They did this often at a sacrifice because they were already short of materials for civilian needs (that's you and me). Despite the fact that building materials manufacturers have been working their plants 24 hours a day, seven days a week, the dealers

NOTE TO READERS:

The article reprinted here appears, as a Johns-Manville paid advertisement, on pages 121 and 122 of the December 13th issue of the *Saturday Evening Post*. It is one of a series by well-known writers, designed to help inform the public of the indispensable part American Industry is playing in our National Defense Program.

Because the spotlight of defense publicity has been on tanks, guns, ships and planes, too few people are aware of the miracle of construction which had to precede the production of these defense materials. Factories had to be planned and built. Workers had to be housed. Roads, bridges, air fields, fortifications, bases and a hundred other building jobs had to be started from scratch and completed "yesterday."

How this great building industry, recovering from the worst depression in its history, dug in and achieved the impossible is here recounted for the first time. It is our sincere hope that in presenting this story to millions of readers we are making a contribution to the entire construction industry and to each individual member of it.

Johns-Manville

are finding it increasingly difficult to furnish supplies with the speed the public has been educated—up to now—to expect.

These smaller companies have shown typical American initiative in meeting their difficulties despite delay in getting materials and shortage of skilled workers. They are particularly deserving of sympathetic understanding on the part of the American public at this time, and it is certainly to their credit that they are not only finding ways around their present difficulties, but are also planning for the future. For these are the men on whom Mr. and Mrs. Homeowner, U. S. A., must depend for the type of housing which will express the true American way of living when peace has come.

We writers and talkers are too deep in the forests of finished products that American genius has built, to be able to see the individual trees. We forget, sometimes, that Uncle Sam didn't furnish the bulldozers and the thousand and one necessary tools when

(Continued on next page)

This is the sixth of a series of advertisements sponsored and paid for by Johns-Manville. For more than 80 years this company has been serving America's basic industries.

How indispensable these industries are to the American Way in time of peace is generally recognized. This series is to help inform the public of the indispensable job these industries are doing in this time of great National Emergency.

Johns-Manville is proud of the contributions its products are making in helping the Construction Industry accomplish "The Miracle of Defense Construction" quickly and at the lowest possible cost.

JOHNS-MANVILLE

THE MIRACLE OF DEFENSE CONSTRUCTION

(Continued from preceding page)

the defense rush struck. These tools were furnished by the great and small building concerns and contractors who had kept alive for ten years only through their courage and ingenuity. Someday they knew they would be needed, and needed desperately. That day came when France fell, and America awoke to her peril. Overnight America demanded adequate defense—armies, training camps, guns, tanks, planes, shells, ships, TNT and powder. And when that call to duty came, not one miracle occurred, *but a thousand!* In a year—in two at the most—the builders HAD to do what Germany had taken seven, in some cases ten years to do.

And they did it! They are saving America by literally building a NEW America. They have conquered Time—they have laughed at Fate. They are winning! Today the bombers and the tanks and the big guns are rolling out of the factories which these men—these builders of the NEW America—have built.

The other day I stood on a spot where for a hundred years tall corn had grown. It was the heart of the broad Corn Belt of this rich land of ours—a single plot of 22,000 acres lying between the Kankakee and the Des Plaines Rivers, a few miles out of Joliet, Illinois. In this single great triangle, where for generations 146 Illinois families had grown corn, were all the basic requirements for a giant plant to make the high explosives for our bombs, shells and torpedoes. Here was plenty of water, excellent transportation, hard roads, safety from enemy bombing attacks and rolling land for protection against inside explosions.

One Miracle Among Many

So this was the spot for "the miracle of the corn fields." The construction company which did the job asked few questions when the government gave them the nod. Quietly they shipped in their key men, and then added workmen at the rate of 100 a day. The bulldozers grunted, the cement mixers groaned, the men sweated and swore—but where the tall corn had grown, there now sprouted chimneys, pipelines, buildings and shops. The sum total of these adds up to one of the biggest, most efficient and safest TNT plants in the world—all done ahead of schedule. That's easy to write about, but these men on the job, just as a starter, had to build 51 miles of standard-gauge railroad, with 117 loading and unloading stations; 44 miles of heavy-duty roads and 80 miles of ordinary highways; 85 miles of pipelines that ran from 4 inches to 42 inches—with 15 miles of sewage pipe thrown in for good measure (and good sanitation). Before this mighty TNT plant was completed, the construction company had put up 460 separate buildings.

The building of this plant is but one example of the job being done. So vast, so widespread is our defense construction a writer despairs, in a short article like this, of ever getting across to you its true magnitude. Maybe this would help: In the first nine months of 1941, we have used enough concrete in airport pavements alone to equal almost all the concrete used in road building in these 48 states in the same period. To pave these urgently needed airports, we have laid enough concrete to build a single-lane transcontinental highway from Charleston, South Carolina, to Los Angeles and back again East as far as Indianapolis, Indiana, or more than 5,000 miles.

America Does It Again

The blue eyes of hard-working, super-efficient, 49-year-old Brigadier General Breton Somervell, Chief of the Construction Division of the Army Quartermaster Corps, twinkled with pride when he talked to me in his Washington office about the all-important part the building industry is playing. "You can't exaggerate what has already been accomplished," he said to me. "It's like the statement made by the great General Goethals about the building of the Panama Canal, *'Birds were singing in the trees one week and ships sailing by the next.'* Americans, working for America, have done it again! The whole building industry has come forward in unbelievably fine shape . . . The results speak for themselves. The efficiency and patriotism of these splendid men have been inspiring. They have tackled what looked to be impossible jobs and they have driven them through, and in many cases ahead of schedule. Labor, too, has, on the whole, been fine . . . We have almost completed our first great program and are deep in our second now. I can't say too much for these men of this fundamental industry."

I don't want to bog you down with figures, but it is fascinating to take hold of one or two items involved in the single business of Army-cantonment construction. We've used enough lumber in our Army camps to nail a 12-inch plank, 1 inch thick, eight and three-quarters times around the world. In building camps and Army cantonments alone we've employed more than 490,000 workers, and a billion dollars' worth of lumber. A score and more of our great civilian building contractors simply rolled up their sleeves, spat on their brawny hands, and dared bad weather and hard luck in their drive to get finished, in time, camps that would be snug and habitable for our expanding army.

How the Job Was Laid Out

The whole enormous job really breaks up into three separate divisions—and behind each stands the vast civilian building industry, with its trained men, its tools and its high patriotism. The Army & Navy Corps and Bureaus developed their specifications and then turned them over to the trained civilian architects and engineers of the country. These men, with their firsthand knowledge of materials and design, did the original planning. They worked night and day, adapting civilian methods and techniques to the new field of construction necessary to our national defense.

All of them did—and are doing—their work in three main divisions because all military construction was split into three parts. *First:* To the Construction Division of the Quartermaster Corps went the job of building the plants for Army training, and ordnance and soldier supplies. *Second:* To the Army Corps of Engineers went the task of laying out the construction of fortifications, camouflage works and all Army Air Corps projects and bases, including the nine great air bases acquired in the Atlantic from the British and the new Alaskan air fields. *Third:* To the Bureau of Yards and Docks of the Navy went the complicated job of building naval air bases in the Pacific and Atlantic, as well as at home, and the whole varied and multiple tasks of Navy construction, from shipyards to training schools.

Behind each of these three divisions stood, in phalanx, the great building indus-

try. Architects, engineers and contractors furnished the brains and the muscle to drive the nails in our far-flung fortresses of safety. Also, hundreds of our finest construction brains were willingly drafted to serve as reserve Army and Navy engineers and Constructing Quartermaster officers. From the Philippines to Puerto Rico is ten thousand miles; from Dutch Harbor, Alaska, to Samoa, in the South Seas, is roughly five thousand miles. So the picture of our preparedness program covers a canvas five thousand by ten thousand miles square. Over this great expanse of land and sea, American engineers, builders with saw and hammers, contractors with fantastic bulldozers and pile drivers, have swarmed like busy bees.

A billion dollars was assigned to the Engineer Corps of the Army. There were bomber and fighter factories and assembly plants to be constructed, air bases to be rushed to completion . . . Altogether 54 great groups of buildings and bases.

Almost overnight a new base is born; a new pearl added to our priceless necklace of national defense—Guam, Wake, Midway, Palmyra, Johnson—these are a few of the names.

Groups of sturdy, daring contractors banded together on most of these jobs, and they found they had to build from the coral and sand *up*. These new Magellans, modern Vasco de Gamas had to tote everything with them, including drinking water!

People Back Home

And (to get back home) in this year of 1941, despite the heavy demands of war, our builders have found time somehow to build many of the new homes needed in defense areas. Next year they will build more. But many materials that might go into homes will have to go to defense plants, powder mills, air schools and shipyards, and so we the People must be patient. When our nation is fully armed and strong we can go ahead and build our new homes once again, without let or hindrance.

And in the meantime we can also thank our building-material manufacturers for having the courage, good sense and patriotism to keep intact their organizations, their research laboratories and their staffs when the going was tough and uncertain. Many had to draw deeply on their reserves, but when the crisis came and the building industry had to really perform "the miracle of defense construction," it was ready with new products, more efficient production, to tackle and finish the job. Once again, private industry had proved it could "take it."

So why should any of us complain if, during this coming year, the great effort and the continued need of turning out vast quantities of war goods leave us short-handed in men and materials for home building? The sacrifice and the temporary hardships will be well worth the cost, it seems to me. For what is a home worth if it is not secure, free and decent?

That's what we're struggling for and aiming for, isn't it? And, when we get there, don't forget the defense job had to be done *from the ground up*—that private industry was ready to do it—and that the roar of the bulldozers was the first signal of ultimate victory for our democratic way of life.

This is the sixth of a series of advertisements sponsored and paid for by Johns-Manville and designed to tell the American people how indispensable our basic industries are for National Defense.

JOHNS-MANVILLE

PLUMBING AND HEATING DEPENDABILITY RESTS IN

MUELLER BRASS CO—PORT HURON MICH—STREAMLINE—HARD—GOVT—TYPE M—

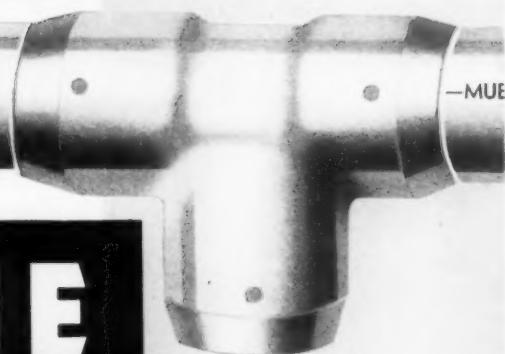
STREAMLINE TRADE MARK REG. U. S. PAT. OFFICE COPPER PIPE AND FITTINGS

● An efficient—and lastingly efficient plumbing or heating piping system is one of the most vitally important factors in any home, or in any building where a conducting system is required. It is the actual nerve center upon which the very livability of the dwelling depends—and this becomes more and more apparent after some years of service.

STREAMLINE Copper Pipe connected with STREAMLINE Fittings assures a piping installation that incorporates tremendous resistance to rust, clogging and vibration. More than that, its cost is little, if any higher than materials that corrode and leak after a few years of service.

STREAMLINE Copper Pipe conducts hot water quicker with less heat loss than ferrous piping. It requires less room to install, has no threaded joints to leak and is the best possible insurance against plumbing repair bills. Like all good things, STREAMLINE has many imitations but no equals. Specify genuine STREAMLINE. Insist upon it being used.

STREAMLINE
PIPE AND FITTINGS DIVISION
MUELLER BRASS CO.
PORT HURON, MICHIGAN



Here's How Your Clients Can
CUT HEATING COSTS UP TO 25%



**ARCHITECTS'
BUILDING**

(101 Park Avenue, New York) shuts out winter's icy blasts with this draft-proof Revolving Door. Built of Herculite Glass and stainless steel, its "all-glass" construction admits a maximum of daylight. Architects: Morris and O'Connor.

★ Every time a swing door opens, your clients lose money. Heated air escapes. Wintry winds rush in. Street dust soils merchandise, wall surfaces, and furnishings. Chilly drafts take a heavy toll in sickness among employees.

Show your clients how to put a stop to "open door" losses. Counsel them to install draft-proof Revolving Doors—and thus reduce air losses, eliminate "stack-draft" wind pressure, shut out street dust and noise, and save up to 25% in fuel costs.

Phone your local Revolving Door representative for technical data. Or write to the factory for FREE A. I. A. Data Folder containing pictures and descriptions of new installations in banks, office buildings, restaurants, hotels and stores.



**5 Ways a Revolving Door
Pays for Itself—**

- 1—Cuts heating and cooling costs.
- 2—Increases usable floor space.
- 3—Reduces damage from dust and dirt.
- 4—Assures customers' comfort.
- 5—Safeguards employees' health.

Revolving Door

DIVISION of

**INTERNATIONAL
STEEL COMPANY**

EVANSVILLE
INDIANA

LET YOUR
CATALOGUE
SWEET'S

★INTERNATIONAL
★VAN KANNEL
★ATCHISON



KOH-I-NOOR

Ask the first Koh-I-Noor pencil user you meet, and then ask a hundred more, and you will get the same unfailing answer, "Koh-I-Noor can be relied upon to give you definite protection from all lead pencil troubles."

Throughout the fifty-odd years the Koh-I-Noor pencil has been on the market, we have, through constant research, painstaking effort and strict adherence to material specifications, supplied critical users with a drawing instrument of superlative quality.

Rely upon KOH-I-NOOR.

#1700 TECHNICRAYON PENCILS with small diameter lead, slightly soluble in water, are manufactured in 30 colors.

SEND FOR FREE CATALOG NO. 3

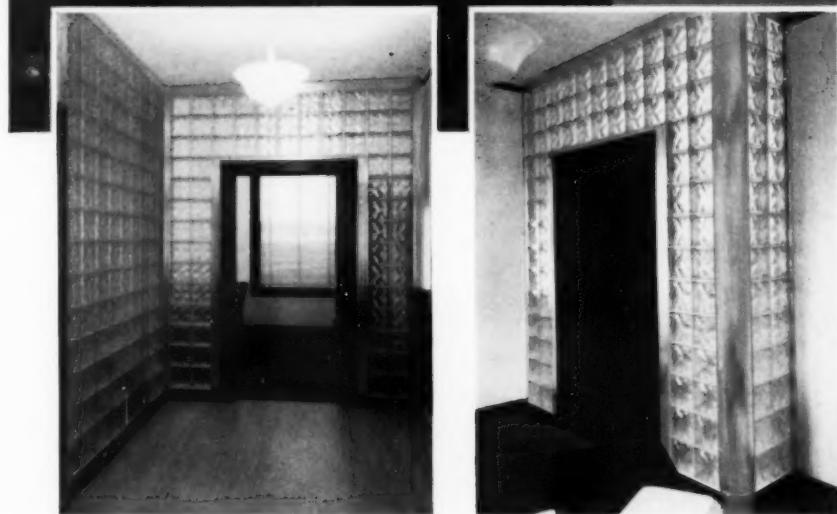
KOH-I-NOOR
PENCIL COMPANY INC.
373 FOURTH AVENUE • NEW YORK



How to put Daylight to work in an office

PC Glass Blocks bring daylight, good looks and practical benefits to Wheeler Kelly Hagny Building, Wichita, Kansas.

(ARCHITECTS: FORSBLOOM & PARKS)



INVITING IS THE WORD for this entrance, surrounded with bright PC Glass Blocks, and flanked on one side by a large wall panel of blocks which helps to make the corridor better lighted. Such PC Glass Block panels are easy to clean with a damp cloth.

ANY OFFICE IS MORE PLEASANT to work in when it is decorated with PC Glass Blocks like this. And architects everywhere are finding out that these blocks, in their eight attractive patterns and three sizes, offer almost unlimited opportunities for effective office design.

NO extravagant claims are made for PC Glass Blocks. Architects have accepted them on their merits . . . and are using them more extensively in all types of building construction every day. They like these blocks because they perform so many jobs so well. They're handsome in appearance. They transmit daylight. They preserve privacy. And they cut heating, lighting and maintenance costs.

We invite you to send the coupon for our free book which contains many illustrations of actual application of PC Glass Blocks, as well as information on physical properties, construction details, and other specific data.

"PITTSBURGH"
stands for Quality Glass



GLASS BLOCKS

Distributed by

PITTSBURGH PLATE GLASS COMPANY
and by W. P. Fuller & Co. on the Pacific Coast

Pittsburgh Corning Corporation
2195-1 Grant Bldg., Pittsburgh, Pa.

Please send me, without obligation, your free, illustrated booklet about the use of PC Glass Blocks in factories commercial and public buildings.

(Be sure to indicate type of building)

Name _____

Address _____

City _____

State _____

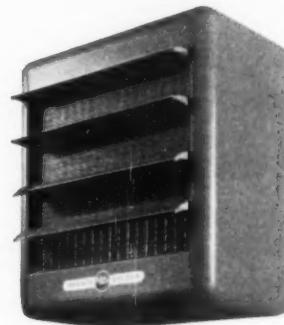


In specifying heating, ventilating and air conditioning equipment, Architects agree that quality and economy go hand in hand.

They know that quality products can be relied upon to provide more economical as well as more dependable operation . . . thus assuring greater satisfaction for their clients. This quality, which assures extra value for the owner, is found in all Herman Nelson Products today as it has been for the past 34 years.

Because owners have enjoyed such satisfactory results with thousands of Herman Nelson Installations, Architects are still unwilling to specify inferior units. They know that the slight additional cost of Herman Nelson Equipment is more than worth the difference.

**THE HERMAN NELSON
HORIZONTAL SHAFT PROPELLER-
FAN TYPE **hiJet** HEATER**



Designed for ceiling suspension, the Herman Nelson Horizontal Shaft Propeller-Fan Type hiJet Heater is widely used for heating buildings of all types.

The complete hiJet line, including 236 models, sizes and arrangements with a wide range of capacities, permits the selection of the correct unit to solve practically any heating problem. Complete information can be secured from Herman Nelson Sales Representatives in principal cities or from the Home Office.



THE HERMAN NELSON CORPORATION MOLINE
ILLINOIS
Manufacturers of Quality Heating, Ventilating and Air Conditioning Products



Color... WITH DIGNITY

Polyflex metal knob bodies with color plastic tops are the soundest sort of interior decorative design. This modern Lockwood development in builders' hardware allows you to accent a room with glowing effectiveness at points that too often are taken for granted or overlooked.

Polyflex consists of a forged brass knob body integral with standard French shank. Interchangeable plastic or metal tops in a variety of colors, patterns, and finishes can be inserted in the knob top.

In the actual color photograph reproduced above, a Polyflex unit is shown with black plastic top. The assembly in-

cludes a simple rose, cylinder collar, and mortise lock having Equipoise (balanced) action. It is a dignified treatment, thoroughly suitable for a fine residence, office, hospital . . .

In these institutional interiors, color is more important than ever before. In Polyflex, you have seven colors to use: Azure Blue, Veronese Green, Cadmium Yellow, Persian Red, Cobalt Violet, Ivory, and Black, to harmonize or contrast with any scheme of decoration. In addition, for more traditional treatments, you have the four patterns in metal tops in brushed and polished finishes. All of these tops are interchangeable upon installation or later as the decorative scheme is altered.

We think you will welcome the chance Polyflex gives you to save many a door from dullness. These knobs and tops may be used equally well with any Lockwood mortise lock or latch set.

Lockwood Hardware Mfg. Co., Division of Independent Lock Company, Fitchburg, Massachusetts.

Liberal use of plastics in builders' hardware will release important metals for defense production. Lockwood is ready!

Polyflex



ANOTHER DEVELOPMENT IN
LOCKWOOD
BUILDERS' HARDWARE

BOOKS for CHRISTMAS

... the ideal gift for your professional associates

For that partner or employee who is accumulating a library on architecture, engineering and related subjects what gift would be more welcome than one or more of the books listed below? Some are published by *Architectural Record*; others are "best sellers" of leading book publishers whose titles *Architectural Record* has made arrangements to handle as a service to subscribers. For your convenience in sending us your Christmas book order there is a handy form below.

1. **PLANNED A.R.P.**, by Tecton, Architects. 138 pages—extensively illustrated with photographs, diagrams and maps—Price, \$2.00.
2. **BETTER HOUSES FOR BUDGETEERS**, by Royal Barry Wills. 104 pages—9 x 12 in.—Sketches, plans and descriptions—Price, \$3.00.
3. **GLASS IN ARCHITECTURE AND DECORATION**, by Raymond McGrath and A. C. Frost. 650 pages, 462 halftone and line illustrations—9½ x 12½ in.—Price, \$20.00.
4. **WORKING DETAILS, PART I: Domestic**, edited by Mildred W. White—139 pages—Price, \$4.00.
5. **ARCHITECTURAL SPECIFICATIONS**, by Harold Reeve Sleeper, A.I.A. 822 pages—Price, \$10.00.
6. **ARCHITECTURAL GRAPHIC STANDARDS**, by Charles G. Ramsey and Harold R. Sleeper, 2nd edition—284 pages—9¼ x 11¼ in.—Price, \$6.00.
7. **ARCHITECTS' AND BUILDERS' HANDBOOK**, by Frank E. Kidder and Harry Parker, 18th edition—2315 pages 4½ x 7 in.—Price, \$8.00.
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ARCHITECTURAL RECORD • 119 West 40th Street, New York, N. Y.

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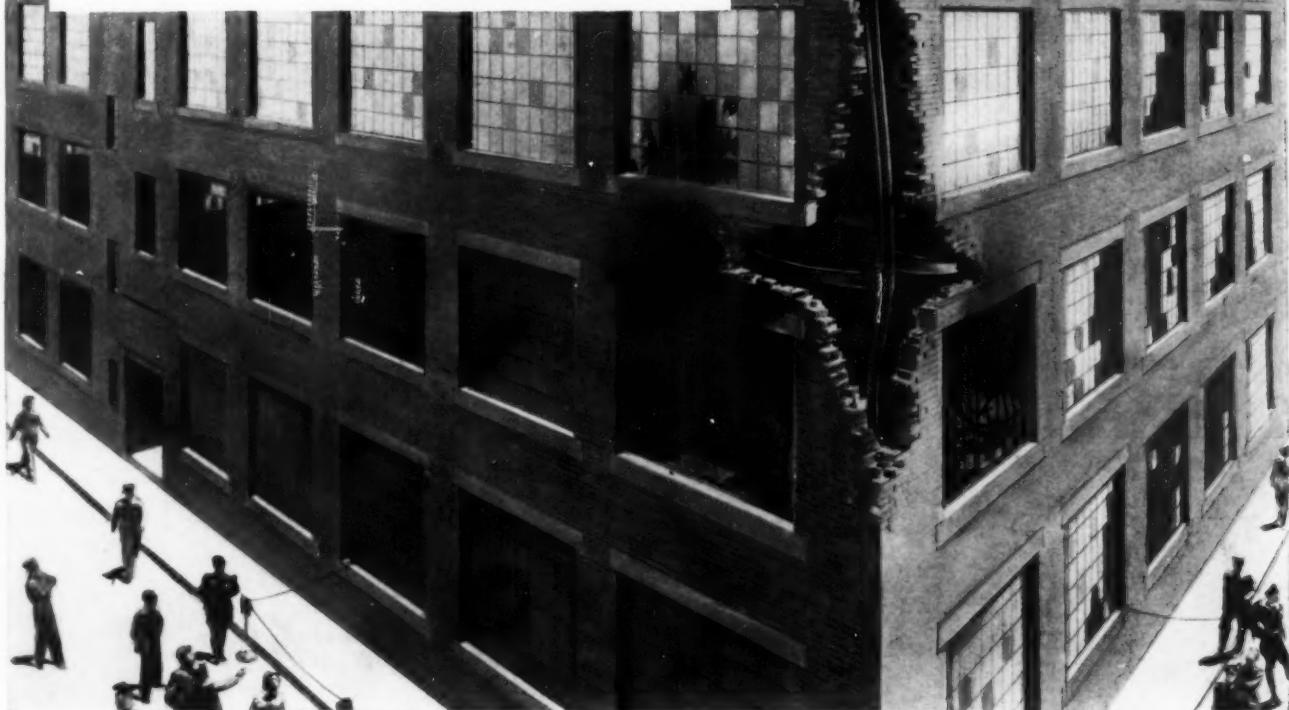
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Not Burned...But "PUSHED APART"

*by Local Fire
Producing Only 1000° F!*



ANYONE who confuses a *non-combustible* with a truly *fireproof* building needs only to see what havoc can result from a localized fire in a so-called *non-combustible* building. Small fires that raise temperature to only 1000° F. may cause 9½ inch expansion in a 100-ft. steel truss . . . enough to wreck brick walls or dangerously distort columns. Even at 900° F., some steel columns may be seriously impaired in load-bearing ability!

Take the simple modern way to make *your* buildings *fireproof* instead of merely *non-combustible*. Build Grinnell Automatic Sprinkler Fire Protection into structural design . . . provide positive protection that stops fire at its source!

There's a staff of Grinnell engineers near you to help make

this efficient fire protection a blended part of your building. With vital facts compiled through Grinnell's 60 years' experience . . . with every type of system at their disposal . . . these engineers know how to harmonize effective fire protection with any decorative design.

Phone for an advisory interview which involves no obligation. Grinnell Company, Inc., Executive Offices, Providence, Rhode Island. Branch offices in principal cities.

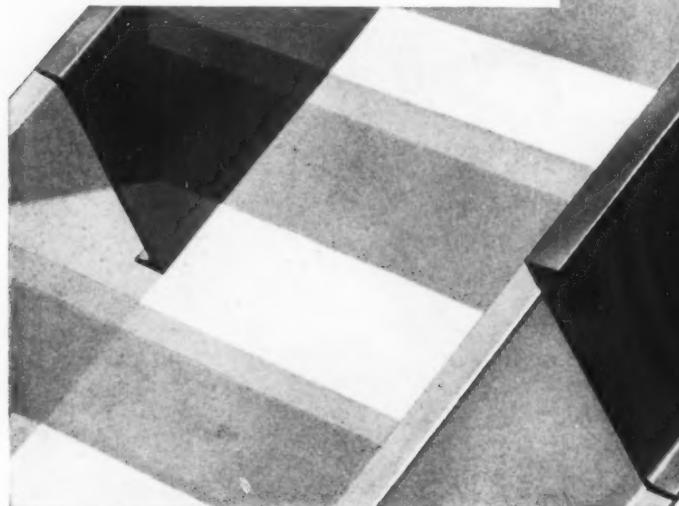
GRINNELL
Automatic Sprinkler Fire Protection

A BLENDED PART OF YOUR BUILDING'S DESIGN



CONTROLLED QUALITY JUNIOR CHANNELS

Combine light weight with strength for stair stringers, roof purlins and other similar uses. Made in two sizes and three weights—10"-6.5 lbs.; 10"-8.4 lbs. and 12"-10.6 lbs.



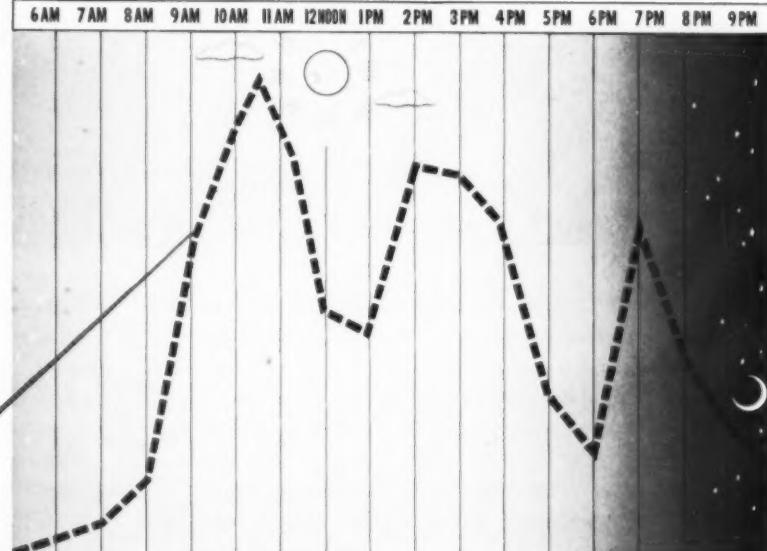
**J&L
STEEL**

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
PITTSBURGH, PENNSYLVANIA

**What are the best times
for your Long Distance
calls?**



"THE TELEPHONE HOUR" is broad-
cast every Monday evening over
the N.B.C. Red Network.



THE chart shows the ebb and flow of Long Distance telephone calls during an average day.

Notice the sharp peaks in mid-morning and mid-afternoon.

That's when the people you want to reach are busiest.

See the third peak at 7 P. M.

That's when other people are most likely to be telephoning, too.

If you avoid these three peak periods, you'll get better service and find folks more free to talk.

It's a simple suggestion—but worth remembering these days when defense puts such a load on telephone facilities.

**Long Distance
helps unite the nation**

An Architect commends flexibility

in heat control as provided by

OIL BURNING SYSTEMS

FRANK W. CRIMP is a member of Adden, Parker, Clineh & Crimp, Boston firm of architects, well known for many Industrial, School and Public Buildings. They recently designed the new \$100,000 plant for the J. A. Wright Co. in Keene, New Hampshire, a model of factory planning, where Petro equipment was used. Concerning oil burning systems, Mr. Crimp has this to say:

"We believe that the use of oil burning systems is particularly well adapted to buildings where considerable flexibility in heat control is required. We have specified oil burning equipment for buildings of various types, both public and private.

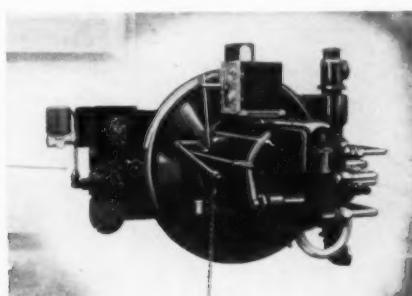
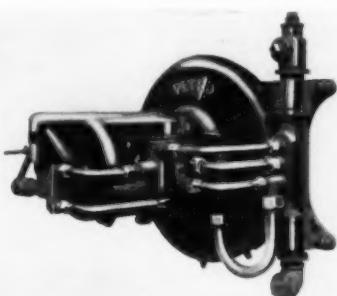
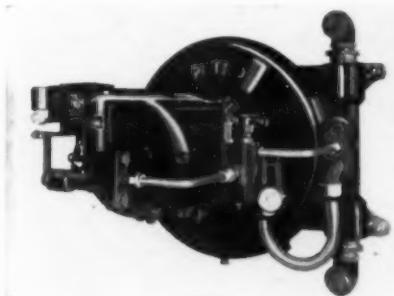
"In the J. A. Wright Co. factory the Petro Oil Burning System was installed with the advice of a competent heating engineer and has proved eminently satisfactory."

Mr. Crimp's remark about flexibility could be generously amplified from the many recent Defense Construction projects for which Petro was selected. In these the primary necessity is dependability, and Petro Systems' performance records offer positive proof of reliable and efficient operation at every stage of demand from a nominal "standby" to as much as 150% of the boiler rating.

The fuel and labor economies which accompany this close control of firing are inherent and obvious. Almost as obvious is the fact that such flexible and reliably efficient operation must begin with the selection of a

burner which exactly meets the needs of the job.

Such accurate selection is practical and easy in Petro burners, because of the wide range of capacities and types of operation provided by the Model W group, without alteration of basic principle or design. As an example of the flexibility of this group, the three pictured below are: (left) an automatic burner for unheated No. 5 or lighter oils; (center) the oil circuit side of a burner for preheated No. 6 (Bunker "C") oil; and (right) the same burner equipped for automatic operation with self modulation of firing to match fluctuations of demand.



CAPACITIES: to 145 gal. per hr.—487 boiler h.p.—68,000 sq. ft. steam E.D.R.



FOR FURTHER INFORMATION
SEE OUR CATALOG IN
SWEET'S

Petro Industrial Burners for Automatic operation with pre-heated No. 6 oil, or with No. 5 or lighter oils, are available in eight sizes, Models W-2½ to W-9 inclusive. Each burner is a self contained assembly of motor, fan, pump, rotary cup atomizer and interlocked air and oil adjustments.

In the use of preheated No. 6 oil, the Petro Thermal Viscosity System is an integral part of a Petro installation,

insuring reliability of operation and fuel economy.

Semi Automatic and Manually controlled Model W Burners and "Mechanical" type units are also available to meet circumstances which do not require automatic operation.

To the Architect in domestic building, Petro offers a complete line of burners for use with existing heating plants and complete oil fired boilers and winter air conditioners.

Petro's Engineering Division will gladly answer questions. The Petro Industrial Equipment Catalog will be sent promptly on request.

PETRO
Cuts Steam Costs

PETROLEUM HEAT AND POWER COMPANY

STAMFORD

—Makers of good Oil Burning Equipment since 1903—

CONNECTICUT

ONLY
THE

Barcol OVERdoor HAS...



THIS EXCLUSIVE FEATURE
ENTIRELY ELIMINATES STICK-
ING... AND AT THE SAME TIME
GIVES WEATHERTIGHT CLOSING

To be satisfactory, an upward-acting type of garage door should close tightly, yet should be easy to open. The BARCOL OVERdoor accomplishes this result most effectively by use of a specially designed closing action.

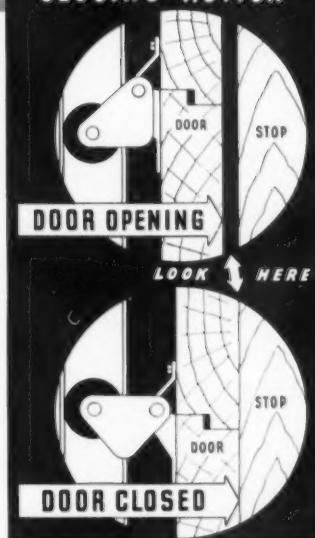
ROLLER-CRANK PRINCIPLE

As shown in the diagram, the rollers, instead of being fixed to the door, are hinged on cranks. These cranks are cam-controlled to swing into the "door-forward" position only in the last few inches of downward travel, and to move the door away from the stop strips quickly as soon as it starts to open.

DOOR RUNS CLEAR OF STOP STRIPS

Thus the BARCOL OVERdoor runs free of and parallel to the stop strips during its entire travel, except just as it is closing or opening. The result—no sticking, easy operation, and a door that closes snugly to keep out dirt and drafts. Ask for a demonstration.

ROLLER CRANK CLOSING ACTION



LOOK
FOR
THIS
MARK
OF QUALITY

SEE...
our new 12 page
Catalog in 1941
SWEET'S

REPRESENTED
IN PRINCIPAL
CITIES

BARBER-COLMAN COMPANY
102 MILL ST., ROCKFORD, ILLINOIS

IN CANADA
A. B. Ormsby Co.
Toronto

Now you can afford the ultimate in unit heater quality. Perhaps that will not be true a few years hence. Grid Unit Heaters will give you years and years of dependable service—long after their initial cost has been written off your books. Grid Units now 13 years old are operating as efficiently as the first year. We have yet to replace an original installation.

In Grid Units there is only one type metal in contact with steam or hot water. There is nothing to cause electrolysis that produces corrosion—cast aluminum heating sections. Complete engineering data upon request.

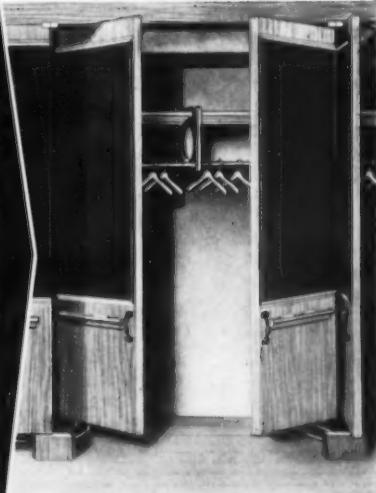
D. J. MURRAY MFG. CO.
WAUSAU, WISCONSIN

Offices in all Principal Cities.

GRID UNIT HEATER

HOW TO KEEP THE
ELEMENTARY
SCHOOL
WARDROBE
PROBLEM

*under
control*



SO pronounced are the economy and satisfaction of Evans Vanishing Door Wardrobes that architects and school officials have specified them for more than 8,000 schools.

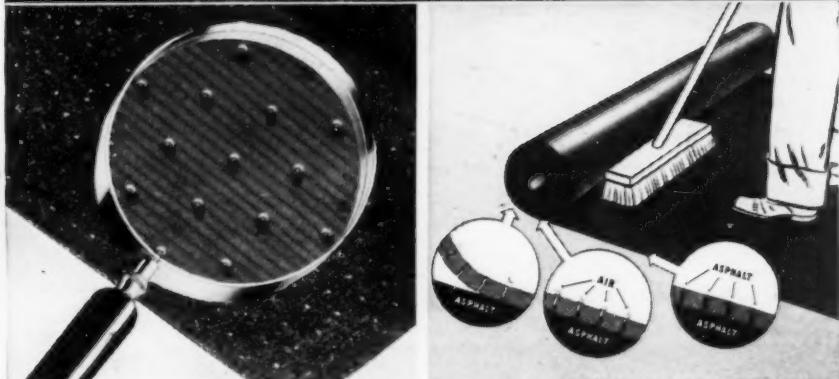
Evans clean-cut, attractive design and time-tested wood construction harmonize perfectly with wainscoting... enhance the schoolroom's appearance. These wardrobes are made to set flush with wall in a recess depth of only 24", and thus economize on space. Doors swing back flush with sides and do not obstruct use of aisles at any time. An Evans Wardrobe in the classroom permits the teacher to supervise storage of pupils' clothing. Costs are surprisingly low. Specify Evans for school wardrobe economy and satisfaction.

SEE SWEETS CATALOG FILE, OR WRITE FOR FULL INFORMATION

Evans VANISHING DOOR WARDROBES
W. L. EVANS COMPANY • WASHINGTON, INDIANA

**HOW CAN
HOLES
IMPROVE
A ROOF?**

**THAT'S EASY!
JUST LISTEN
TO THIS ...**



The holes (greatly magnified above) in the new Johns-Manville Perforated Asbestos Felts are the result of years of research, experience and testing. As the felts are laid, these countless tiny perforations act as . . .

. . . "check valves," permitting trapped air to escape. They are then sealed by the waterproofing asphalt. Thus, blistering is virtually eliminated. Application is faster, too, and the felts adhere tighter.



Fire protection is also provided. As shown above, J-M Felts remain undamaged under conditions that quickly destroy ordinary felts. Rotproof as well, they assure continued . . .



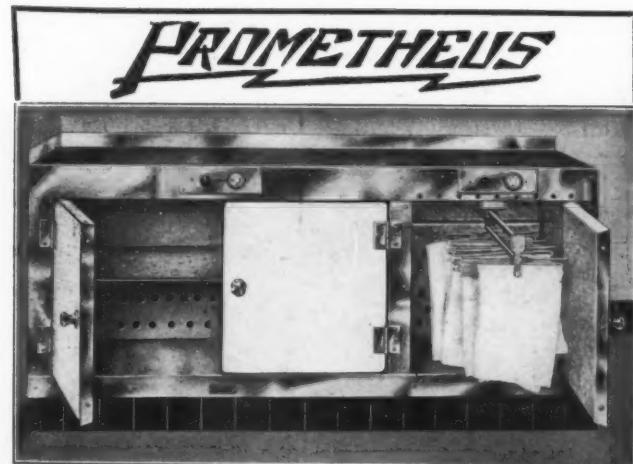
. . . low maintenance. No periodic re-surfacing is needed to protect against the drying-out action of the sun. For example, the roof above is 27 years old . . . and still going strong!

The principle back of the new J-M Perforated Asbestos Felt is the same used so successfully by expert waterproofer who employ an open-weave fabric in connection with membrane waterproofing jobs.

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Smooth-Surfaced
ASBESTOS BUILT-UP ROOFS

**THE ROOF
WITH THE SAFETY
FACTOR**



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and Towel Dryer**

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S.P.69

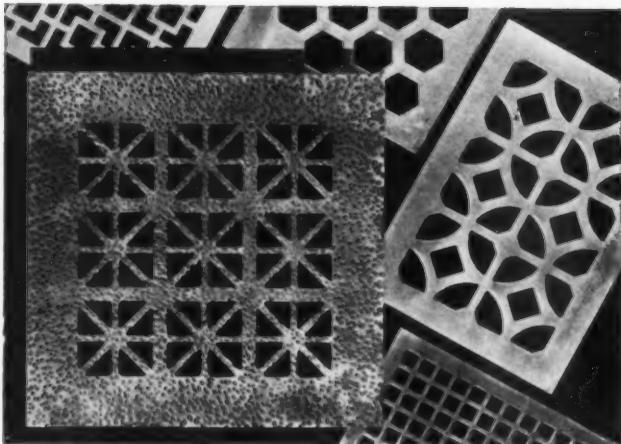
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REPRESENTED IN PRINCIPAL CITIES



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Buffalo Worcester Chicago San Francisco

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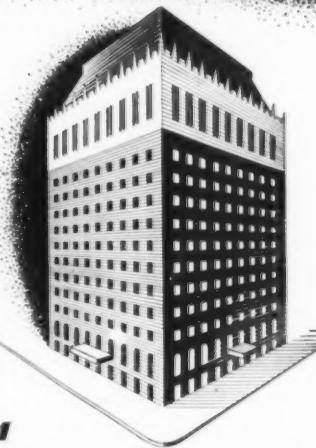


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AMBER ROOM
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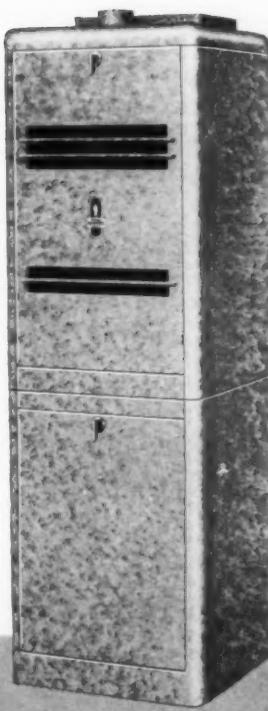
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THE WORLD**

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Memorial to heroic women
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SEE OUR CATALOG IN SWEET'S

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Control
The Door
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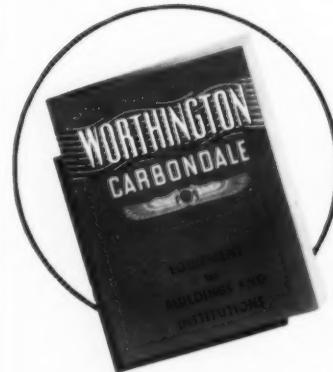
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IN HOMES BEYOND THE GAS MAINS

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PEOPLE EACH DAY**

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Note how abrasive
grits extend clear
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thickness.

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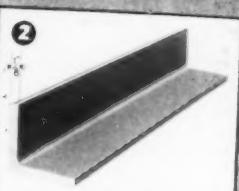


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Never rust, wear,
break nor fall out.
Vents stay aligned,
work smoother, and
"weather" better.



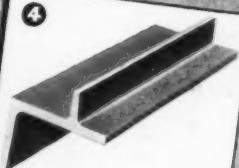
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No springiness, each
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AMERICAN HOTEL ASSOCIATION



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Recognized Hotel



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STOP at a HOTEL

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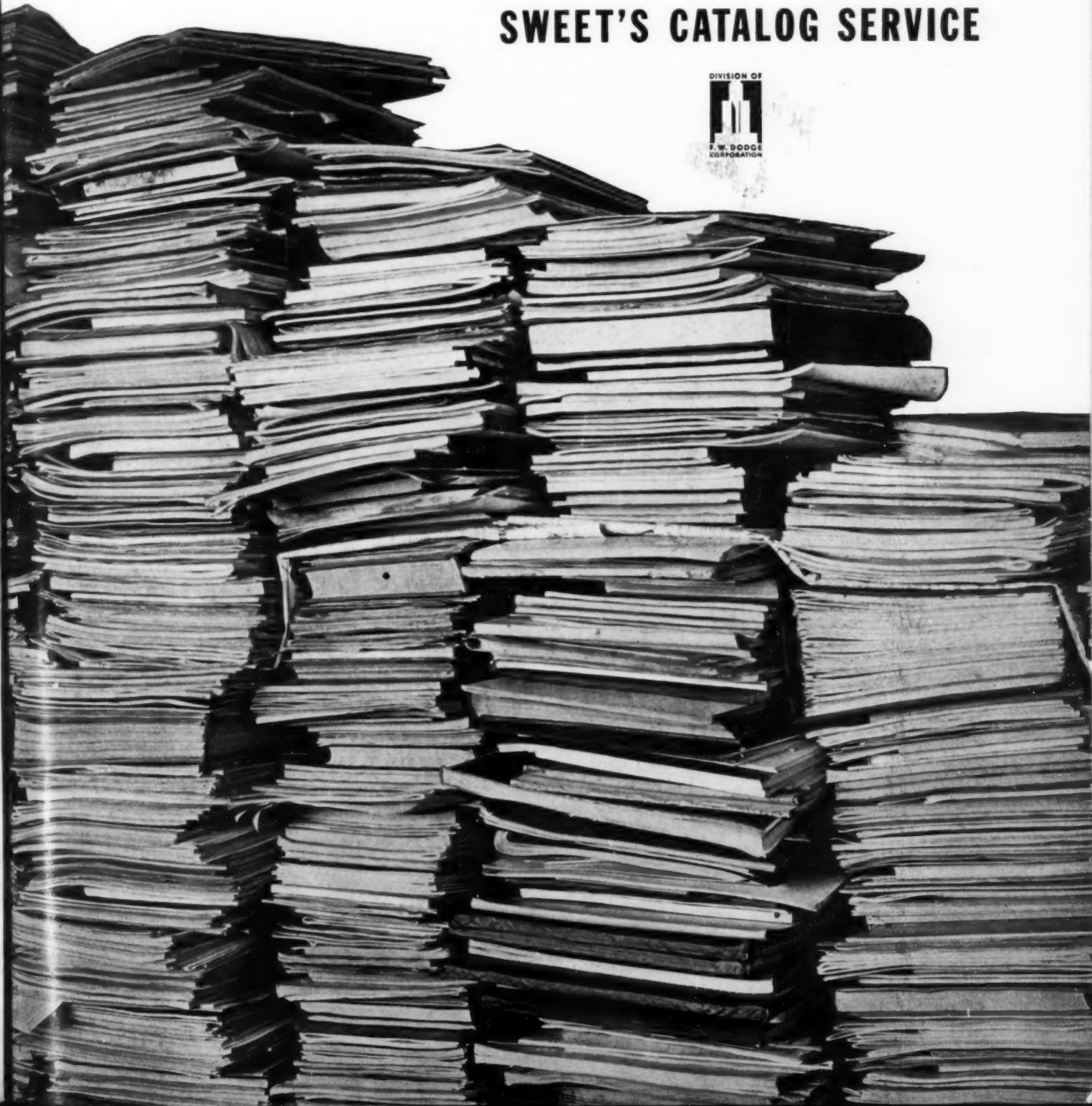
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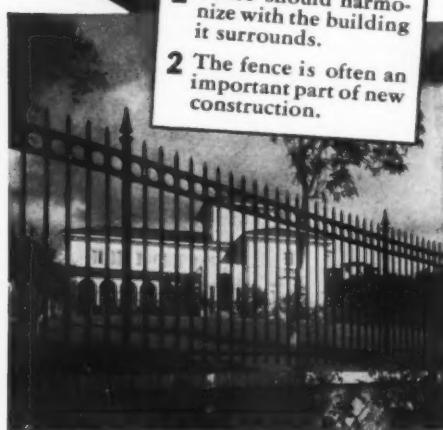
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- 1 Fence should harmonize with the building it surrounds.
- 2 The fence is often an important part of new construction.



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1. For BEAUTY: Architects specify Anchor-Weld Iron Fence because its unusual strength makes center-supports and cross-bracing unnecessary. Each panel will support one ton of distributed load. Made in a wide selection of standard designs or to your own individual requirements.

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 Anchor-Weld Sample Name of nearest Anchor
Fence Engineer.

Name _____
Firm _____
Address _____
City _____ State _____

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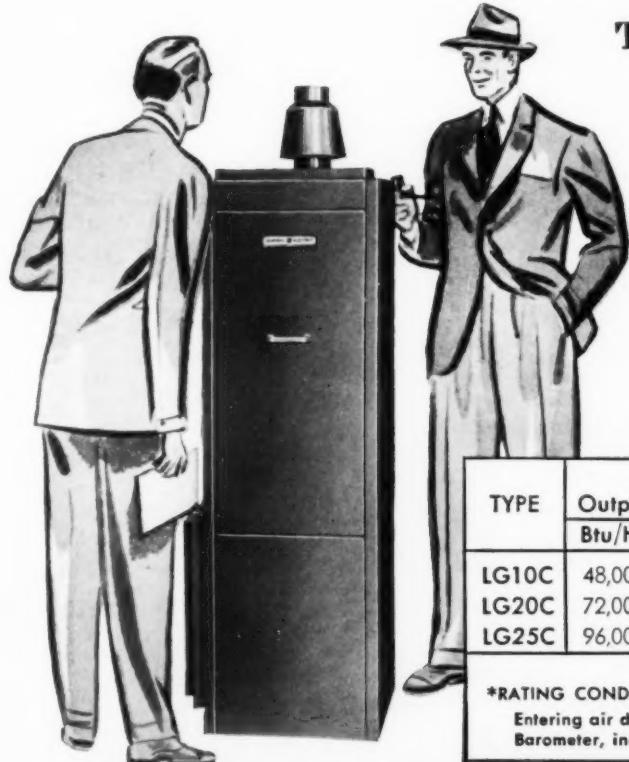
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these features**

- 1. Occupies as little as 3½ square feet floor space.**
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- 2. Corrosion-resistant cast iron heat transfer surface.**
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- 4. Approved for installation in basement, utility room or closet.**
Specially approved by Underwriters' Laboratories, Inc. for installation in closets with only 2 inch wall clearance.



TURN TO 

For these furnaces (available for defense home requirements only), and other General Electric heating and cooling equipment, look in the Classified Telephone Directory for the G-E distributor, or write to General Electric, Div. 644, Bloomfield, N. J.

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TYPE	Output*	Input*	Air Flow	Duct Resistance	Dimensions		
					Btu/hr	Btu/hr	Cfm
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LG20C	72,000	90,000	810	0.1	54½"	19½"	29¼"
LG25C	96,000	120,000	1080	0.1	54½"	24½"	29¼"

Approved by A. G. A.

*RATING CONDITIONS

Entering air dry bulb temp., deg F 70
Barometer, inches mercury 29.9

POWER SUPPLY

Volts 115
Phase Single
Cycle 60

.. save time  **.. save money**  **select**

GENERAL ELECTRIC





DODGE WOULD HAVE SAVED DJOSER A LOT OF HEADACHES

FROM THE OFFICE OF H. R. H. DJOSER

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"My geologists have found a swell outcropping of stone. They've got stone men carving the body and head of the first Sphinx. We're using a lion from the Royal Zoo as a model for the body and a nice looking girl we bought in Greece for the head. My wife loaned her a head dress. But that's not the part that worries me."

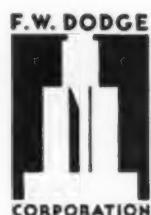
"The body is to be 150 feet long. It will be about 60 feet tall, but I'm having trouble assembling the paws that extend out in front for 50 feet. That's masonry and cut stone. It's a problem to get materials. I should've given the Pyramid men those priorities. Skilled cutters are scarce and transportation is a headache. I promised the priests I'd get this finished in 10 years, and I can't have any trouble with the Church, with elections coming on."

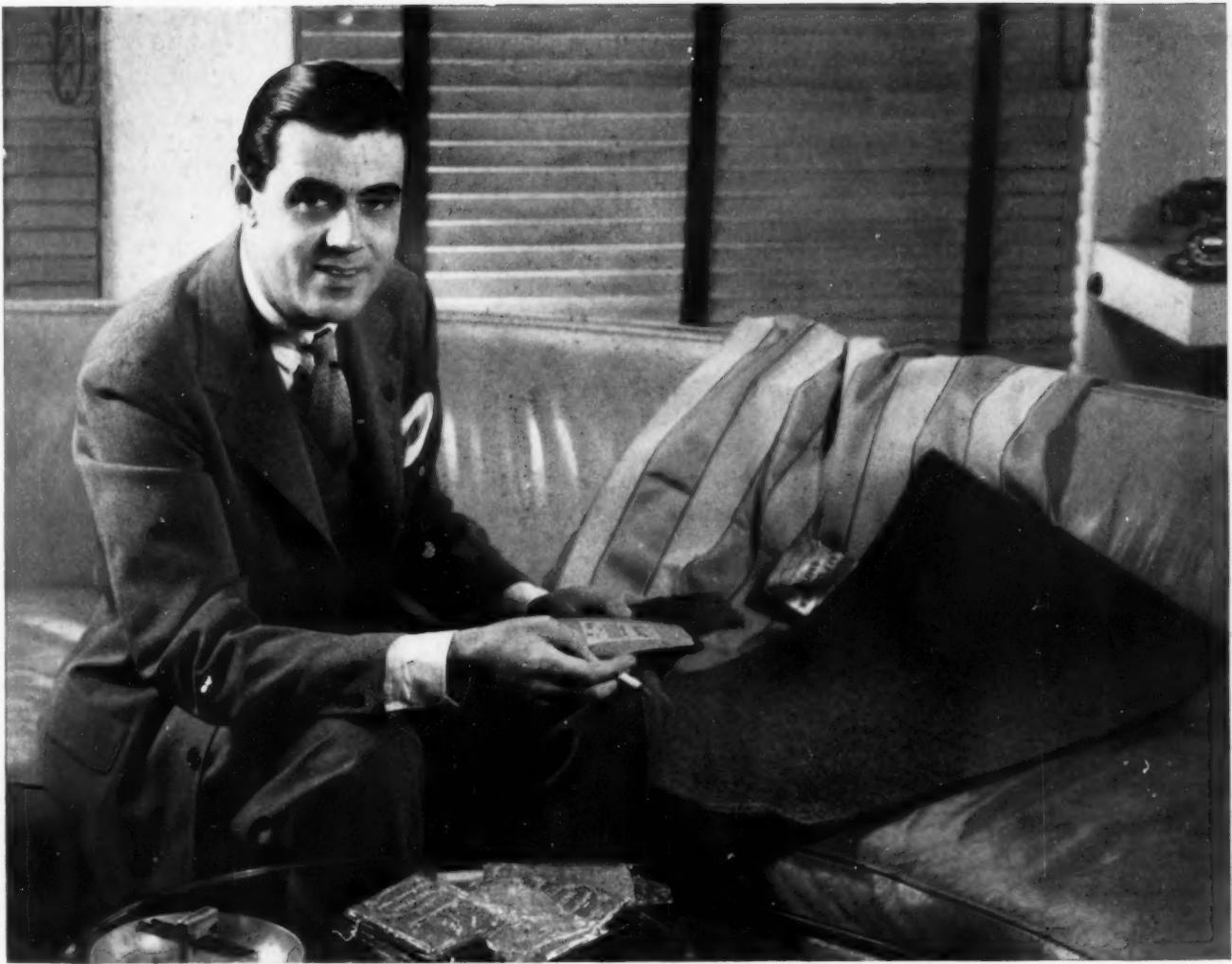
Even though Djoser was the King, he had his troubles aside from running a big Kingdom. The demands of his armies were heavy and his greatest task was assembling men and materials. There were men to do the work and materials available, but the problem of coordination was great then, because there was no service like Dodge Reports to inform suppliers, contractors, artisans and people who specialized in that type of work.

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by John Ullmann, Jr.

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* * *

For information about Alexander Smith Carpet and complimentary copy of our comprehensive, fully illustrated book, "Nearly Right Won't Do in Contract Carpets," write Alexander Smith & Sons Carpet Co., 295 Fifth Avenue, New York, N. Y.

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Built for Today

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No Critical Materials

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*for Efficiency
Permanence, Safety*

HOLOPHANE HIBAY REFLECTOR (500-1500 WATTS)

Today, Planned Lighting does its part in the fight for greater speed. With eyes working harder, working longer and under nervous tension, this new Holophane Unit is a timely aid to defense. It accelerates production schedules and reduces costly errors.

The Holophane Hibay Unit No. 990, illustrated here, is one of four new reflectors each with a different light distribution for uniform results under varying mounting conditions. The fact that these reflectors were designed and produced within the restrictions of the emergency is a tribute to Holophane research and engineering skill.

- **INVESTIGATE** how conservation of materials, of power and of men can be advanced in your plant by the installation of new Holophane Hibay Reflectors. Write for details. No obligation.

STUDY THESE ADVANTAGES:

1. Uses no critical defense materials
2. Standard Holophane construction . . . sturdy as a Canelite.
3. Traditional Holophane efficiency, permanence, safety
4. No wattage limitations — maximum 1500 watt Incandescent or 400 watt Mercury
5. Common-sense high bay light distribution for high mounting

LOWER COST—FASTER SHIPMENT

Holophane
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